The Iron Age

A Review of the Hardware and Metal Trades.

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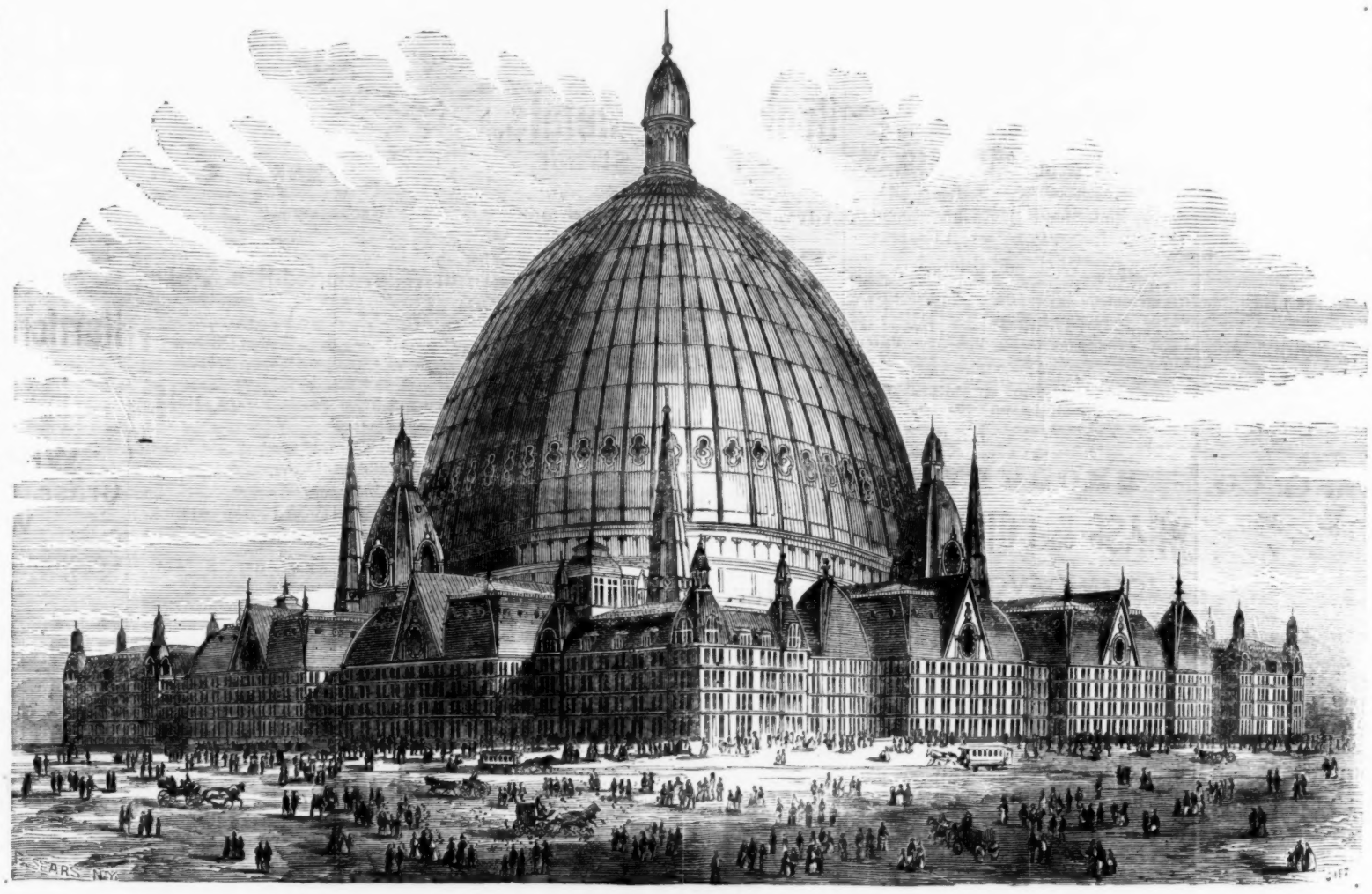
The Proposed "Palace of Industry."

We present herewith an illustration of the "Palace of Industry," the erection of which is proposed by the New York Industrial Exhibition Company. Whether the schemes of the company are carried out depend, we believe, wholly upon the extent to which the public will subscribe to its stock and bonds. The most we feel prepared to say at present is, that the managers of the enterprise are confident of its success, and that it has secured a strong support among our merchants and manufacturers.

The plan of the building has not been decided upon, but the following is the description of the plan which will probably be used, as given in the circular of the company. The ground to be occupied by the building is very nearly square, being 980 ft. 6 in. by 1001 ft. 6 in. The nature of the ground, being very sloping at the sides, would determine that the building be 125 ft. in depth, and having the shape of an open quadrangle, would enclose a court of 730 ft. 6 in. by 751 ft. 6 in. This would make the main floor of the exhibition building on a level with the floor of the court, and would give a line of stores fronting on a level with Third Avenue and the streets, 32 ft. in hight and 125 ft. in depth, and surrounding the entire building. The effect of this would be to make the building, viewed from the outside, 32 ft. higher than when viewed from the court. Commencing on a level with the court, there will be five stories and a Mansard roof. Each floor will be open, and each space will be enclosed by a square or circular counter about 4 ft. in hight. By this plan, in case of fire in one department, it could not spread to the adjoining departments. This would give in gross 2,163,750 square feet of space, of which there would be 1,574,400 to rent, and 589,350 for waste room. The top floor will be lighted from the roof and from the sides, with the light so arranged that it can be adjusted; this floor, it is intended, shall be used as a library and art gallery. The court will be used as a garden of plants and for special places of amusement; and over the court, in the center, will be erected a dome made of iron and glass. It is intended to make this dome the largest in the world. It will rest on a double row of columns; will be at the base 450 ft. in diameter, and will be 700 ft. high. The columns will be plain, and on each column will be a bracket large enough to support a life-sized statue. At the top of the dome there will be an observatory, and elevators will carry up visitors. There will also be a stairway leading to the observatory.



PROPOSED "PALACE OF INDUSTRY" OF THE NEW YORK INDUSTRIAL EXHIBITION COMPANY.

It is stated by the officers of the company, that a proposition has been made by a combination of capitalists and manufacturers of iron in Boston, Mass., and New England, by which a Boston firm agree to build a dome to cover the court without the company expending a dollar; all that is asked of the company is to grant a perpetual lease above the spring of the arch, and this firm expect to make good dividends from the fares collected from passengers visiting the top of the dome. The firm, it is stated, are ready to commence work at any time after the lease is made, and to give bonds in the sum of $5,000,000 for the completion of the dome. It is not decided of what material the building will be constructed. The company state that an English firm has offered to furnish all of the brick required, delivered upon the ground, and to take all of their pay in stock of the company at par. The bricks they propose to furnish are a light golden yellow, the same as used in The Albert Hall, of London.

The structure was designed by J. C. Markham, of this city and its estimated cost is $10,000,000. It will be located on that portion of land lying between Fourth and Third Avenues, and Ninety-eighth and One Hundred and Second streets.

Coal is being developed in considerable quantities in the neighborhood of Urichsville, Ohio.

The Burleigh Rock Drill.

The success of the Burleigh rock drills and air compressors at the Hoosac Tunnel, and at the government works at Hell Gate, has exceeded the expectations of the engineers in charge, and of the Hoosac there now remains but three thousand feet to excavate, which will be finished by October next. The Nesquehoning tunnel, cut by means of these drills, was finished in two years less time than would have been possible had the work been done by hand. The good results which have attended their employment in this country have attracted attention abroad, and they are to be used in cutting the great St. Gothard tunnel, thirteen miles long. Their use in mining operations also has been attended with an important economy, and they are now in use in the Calumet and Hecla, Central, Silver Island and other mines in the Lake Superior district, and it is sufficient commendation to say that they have received the approval of many of our best engineers, including General Newton, Mr. Sidney Dillon, the Messrs. Shanley, Mr. J. Dutton Steele and Colonel Roebling, all of whom have adopted the Burleigh machinery in the works under their charge.

We take the following interesting account of the operations of the Burleigh drill in the government submarine works at Hell Gate, from the *Scientific American* of the 25th instant:

The bottom of the river is composed of strata of gneiss, through which run veins of quartz. Here and there thin layers of decomposed mica have been encountered, often causing serious leakage, but the rock generally is of great hardness (as comparatively expressed by geologists, about 6), rendering rapid boring a matter of much difficulty. The bed slopes away from the shore at a considerable declivity, and as the tunnels are necessarily parallel to the inclination, the drills are often placed to work at angles as great as 45°. Excavations are made in the usual manner by continued boring and blasting, one tool cutting a tunnel just high enough to accommodate the miners, while a second drill, some forty feet in the rear, removes stone from the roof until the gallery or heading has reached its proper hight of twelve or fourteen feet. The principal

DRILLS

that are or have been used are the Burleigh and the Diamond. The latter, however, has been found unsuitable for the work in small tunnels, and although two machines have been purchased by the government, they have not been used since last July for tunneling purposes, and now lie idle.

In justice to the Diamond drill, it may be stated that its work at first was satisfactory. There is no doubt that, as a prospecting tool and for deep boring, it is of much utility, but the actual results, as determined by the work of the drill upon the hard rock at Hell Gate, clearly indicate that, in the present instance at least, its competitor, the Burleigh, has a manifest advantage. The average work of the Diamond was, for a period of four months, 14·4 ft. per shift of eight hours, at a cost of $1·16 per lineal foot; that of the Burleigh, 26 ft., at from 42 to 43 cents per similar distance. Four Burleigh drills, from the months of October to April last, completed 20,000 ft.; two Diamond drills for the same period, less two months, accomplished 7000 ft. An average of 5½ Burleigh in one month pierced 7300 ft. The opinion of the workmen and of those directly in charge of the operations is in favor of the last mentioned machines, eight of which are employed, six in the tunnels and two in the shops as substitutes. The cost of repairs for the six is about $27 per month; that of the steel expended was, for December, $27, for 451 pounds.

As regards the Diamond drills, from all accounts, the hardness of the material formed the great obstacle, and we were informed that the machine rarely ran for more than forty-eight consecutive hours without a breakdown. Its cost for repairs was remarkably large, reaching, for the machines used, including replacing of a number of diamonds, etc., in a single month as high as $700. Including stoppages from various causes, shifting from tunnel to tunnel, etc., the average work of the drill was 1·8 ft. per hour; that of the Burleigh is 3·5 ft. All of the above facts, we may add, were obtained directly from unprejudiced government officials, and in no case from an employe of either manufacturing company, or from any one having interest in the machines.

THE COST OF THE WORK,

as it is now conducted under government auspices, is strikingly less than that of preceding operations of a similar nature which, from time to time have been, attempted in the same locality. When let out on contract, the expense per cubic yard of stone removed, obtained by Maillefert in his workings in Pot Rock, was $44·25. At the present time, $6·42 is the corresponding expenditure at Hallett's Point, and this is about one-third of the price asked by contractors. The land on which the buildings, etc., are erected belongs to private parties, to whom two-thirds of the stone excavated is given as ground rent. About one hundred and twenty men are now employed. Power is supplied to the drills and to the blacksmith shop by five Burleigh air compressors, which work in winter in oil and in summer in water. All articles for use are made on the spot. An old boiler, otherwise useless, was, with considerable ingenuity, repaired, mounted on a carriage, and, with a small steam engine, makes an excellent dummy, serving to draw away the dumping cars as fast as they are filled with the loose material taken from the headings, thus saving the labor of six men.

The Coal Trade of Great Britain in 1872.

The London *Mining Journal* says: Notwithstanding the great price which still has to be paid for coal, the exports to France have been pretty well sustained during the last four or five months. The shipments of our coal to the French in November were, indeed, 180,781 tons, as compared with 193,213 tons in November, 1871; and 93,428 tons in November, 1870; while in the 11 months ending November 30, this year, the aggregate shipments were 2,017,587 tons, against 1,770,498 tons in the corresponding period of 1871, and 1,993,234 tons in the corresponding period of 1870. It is a remarkable circumstance that France paid us £1,344,655 for coal to November 30 of this year, while in the corresponding periods of 1871 and 1870, the corresponding payments did not exceed £799,136 and £882,088, respectively. These statistics prove conclusively that, in spite of all her misfortunes, France is still a great commercial country, and that her coal consumption has a constant tendency to increase. In the whole of 1871 France took our coal to the extent of 1,996,977 tons; in the whole of 1870, to the extent of 2,106,784 tons; and in the whole of 1869, to the extent of 2,017,855 tons; so that it appears tolerably certain that 1872 will witness a large progress in the French demand, which will probably absorb this year 2,180,000 tons of our black diamonds. In 1862 the corresponding exports were 1,306,000 tons; and in 1852, 652,000 tons; so that the consumption of English coal in France has multiplied more than threefold during the last 20 years, in spite of the introduction of a large quantity of Belgian and Prussian coal into France, and in spite, also, of the growth of the indigenous coal production of France. Twenty years ago coal mining industry in the department of the Pas-de-Calais had scarcely any existence; it has since been developed upon a large scale, but it has not prevented the very decided increase in the consumption of English coal in France, indicated by the statistics which we have been summarizing. That the use of steam-power among the French is destined to acquire a still further development no one can reasonably doubt; and this being the case, we may expect to see a gradual further increase in the consumption of English coal in France, or, at any rate, the present demand for it is likely to be well maintained, as the French do not, as a rule, take very kindly to coal mining.

English coal would also appear to have acquired a solid footing in Germany. The war of 1870–1 gave a decided impetus to the demand, which has not since been lost. Thus in the first 11 months of this year our coal was sent to Germany to the extent of 2,000,609 tons, against 2,326,882 tons in the corresponding period of 1871; and 1,479,393 tons in the corresponding period of 1870. This year's figures will not be quite up to the mark of those for 1871; nevertheless, the German consumption has this year been very considerable and important, and has proceeded almost *pari passu* with the French. The close of the Franco-German war brought with it a great activity in the prosecution of the peaceful arts throughout Europe, and Germany having shared in this activity has required more coal than she has found it practicable and convenient to extract from her own soil. It is a noticeable fact, however, that Russia, although apparently enjoying an exceptional degree of prosperity, and although now endowed with a rather considerable network of railways, has consumed less British coal this year than in 1871 or 1870, our coal exports to Russia to November 30, this year having been only 789,196 tons, as compared with 898,539 tons in the corresponding period of 1871, and 817,957 tons in the corresponding period of 1870. The declension observable in this year's figures would seem to indicate that Russia is turning her native coal resources to more account than formerly. Italy seems to be becoming an increasingly good customer for our coal. Italian commerce and Italian industry have been growing in importance during the last two or three years, as Italian official returns abundantly testify; and the result is reflected in an increase of the exports of our coal to Italy this year to 877,762 tons, as compared with 751,113 tons in the corresponding period of 1871 and 690,521 tons in the corresponding period of 1870.

As regards our coal exports generally, it is now tolerably certain that they will present a solid and substantial advance this year over the corresponding exports of 1871, 1870, and previous years. The aggregate shipments to Nov. 30, this year, amounted to 12,381,591 tons; and it may be expected that December will add at least 1,000,000 tons to this total. Assuming that this estimate is realized, the entire exports for 1872 would be 13,381,591 tons, a total which would compare as follows with the corresponding exports of the previous fifteen years:

Year.	Tons.	Year.	Tons.
1857	6,737,718	1865	9,770,477
1858	6,529,483	1866	9,953 712
1-59	7,006,949	1867	10,415,778
1860	7,321,832	1868	10,837,804
1861	7,855,115	1869	10,588,425
1862	8,301,862	1870	11,702,649
1863	8,275,212	1871	12,816,434
1864	8,809,908	1872 estimated	13,381,591

The exports would thus appear to move on with an average increase of about 500,000 tons per annum, so that by 1892 it is not at all impossible that they may amount to 23,000,000 or 24,000,000 tons annually. This may appear rather a startling conclusion to arrive at, but let the reader examine the growth of our coal exports for the last fifteen years, and then let him judge for himself.

Iron ore has been discovered in Barbour county, Kansas, in the vicinity of Medicine Lodge. It is found in the hills there in immense quantities.

A bill has been presented in the Maine Legislature requiring all the railroads of the State to adopt the Miller platform and Westinghouse brake.

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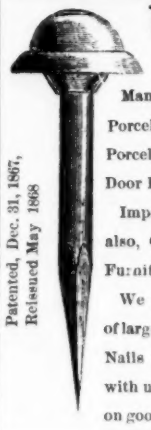

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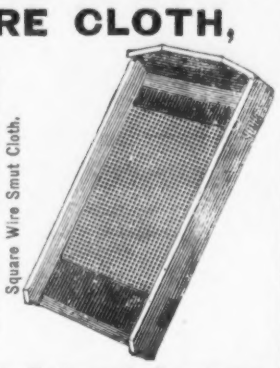

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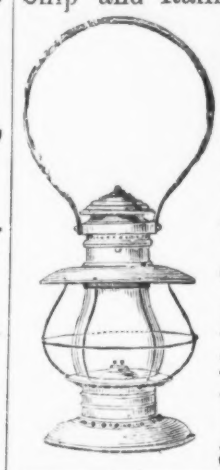

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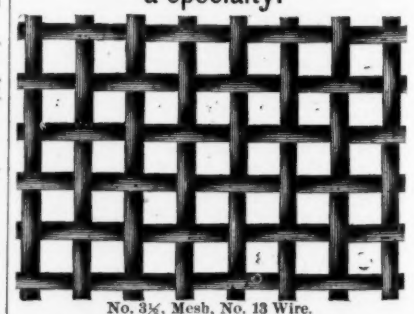

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Colony Settlements in the West.

We take the following from an interesting letter addressed by Hon. Wm. D. Kelley, member of Congress from Pennsylvania, to the Executive Committee of the Philadelphia Soldiers' Colony:

In view of the difficulties which deprive so many American boys of the benefits of apprenticeship, or the privilege of acquiring, on any terms, a competent knowledge of any of the mechanic arts, some of which result from the rules of trades unions relating to apprentices, and others from those adopted by the owners of large establishments, who prefer to employ skilled men to manage their machinery rather than to train youth for its future management, it is of primary importance than those of our countrymen who may be thus denied the privilege of earning the wages due to skilled labor, and those who by the vicissitudes of war have been so injured as to be unable to follow the trades to which they have been reared, should avail themselves of their rights in the public domain.

It has been my privilege to visit a number of successful colony towns, each one of which has served to confirm my impressions in favor of the colonial or co-operam oftive syste settlement. In these young towns there are no trades unions or large manufactories. In them the workshop prevails, and the fair hand finds employment at current wages, whether he has served a full apprenticeship or not; and the sturdy boy encounters no obstruction to his desire to learn any branch of handicraft that is practiced in the town or vicinity. In all of them work is honored, and skilled labor in demand. Thus these new settlements are made to counteract the evil tendencies which seem to me to be for the present inseparable from great industrial centers in which there are large concentrations of capital and labor, with their inevitable antagonisms.

Another reason for promoting settlement by colonies is that too large a proportion of our Western people are engaged in agriculture, to which the individual pioneer must devote himself, though he may be aware of the fact that wheat, corn, or oats will not pay the cost of transportation to a market, and leave him anything as wages for his labor or rent for his land, except the simple elements of his own hard and unrefined existence. But a colony composed largely of skilled mechanics at once proceeds to avail itself of the natural forces, or, in other words, to command those servants which Providence has so bounteously provided in almost every part of our country, such as water-power, coal, and minerals, whether they be iron, copper, lead, silver, gold, or others, thus providing for their own wants and creating a local market for the existing surplus of wheat, corn, beef, and bacon. The farmers of the Missouri Valley and of Iowa are at present in a most anomalous condition. They are all rich in the products of the farm, but are all very poor, many of them even to destitution, if their resources are estimated by their ability to buy for cash the most ordinary necessaries of life. This state of affairs results from the fact that they have all raised the same commodities—wheat, corn, oats, and live stock—for which there is no market, inasmuch as the States lying between them and distant markets have been able to supply the demand from their abundant crops. As a striking proof of the correctness of this proposition, I point to the fact that, though Iowa is one vast coal field, her farmers, regardless of the fact that each successive crop of corn absorbs a given percentage of the productive power of their land, and thus impairs, in some degree, its productive power for the future, are consuming corn as fuel. Were there in their midst towns settled by colonists, who had at once engaged in mining coal, blacksmithing, manufacturing, even on a small scale, woolen goods suitable for the local market, wagons, ploughs, and other agricultural implements, or in shoemaking, tailoring, carpentry, bricklaying, and other branches of the builders' art, there would be a home market for much of the farmer's grain and provisions, and a quick and ample return to the colonists for their skill and labor. But in addition to, and perhaps more important than, this, such a town would open to the farmers' sons an opportunity to engage, near their homes, in other than agricultural pursuits, and to promote a wider home market for farm products by the wider diversification of the industries of the State.

The Mining Law of Michigan.

A bill has been introduced in the Michigan Legislature which, if passed, will do away with certain legal restrictions which are beginning to cramp the companies engaged in mining iron and copper in that State. As the law now stands no such corporation is permitted to hold more than $500,000, or 15,000 acres of land. The new bill provides that no corporation shall go to work with less than $10,000, but does not otherwise limit the extent of the capital, except by declaring, that it cannot be increased except by a two-thirds vote in interest of the stockholders. It also permits the corporation to hold as much real and personal estate as it needs for carrying out the purposes of its existence, with its restriction, that it cannot hold over 3000 acres until it is fully organized and engaged in business. Hitherto the old law has been sufficient for the demands of the mining corporations, but they find that they are beginning to be incommoded by the restrictions. The land that they hold is good only for the heavy timber on it, which they reduce to charcoal for smelting ore, but the timber is now nearly all used, and more wooded land is needed. They would sell this land and buy more, if any purchasers could be found, but the bare ground cannot be turned to account. While the business has been growing, the mines have been accumulating a lot of refuse ore, which is still valuable if it can be properly smelted on the ground, but which will hardly pay for the trouble of transporting it East. New corporations might be organized for the purpose of erecting the necessary furnaces and works, but this would be a simple evasion of the law, and the present mining corporations wish to avail themselves of the prestige of their present name. It is to meet these exigencies that the bill is proposed. A company wishes to begin the manufacture of Bessemer steel in the region where the ore can be found. The present law virtually prevents any steel from being manufactured in Michigan, because the required outlay for doing the business properly, would amount to $2,000,000. Marquette, L'Anse, and Escanaba, are all points where such a manufactory might be easily established, because both ore and coal are readily accessible there, and the finished steel can be shipped at once. The matter is one which concerns almost the only business interest of the Upper Peninsula.—*Detroit Tribune.*

The Fishkill Landing Machine Co.

We present this week an engraving of the improved horizontal steam engine, with slide valve and cut-off, manufactured by the Fishkill Landing Machine Co. The slide valve and its connecting rod are so arranged that by adjusting the latter at its connection with the fly-wheel shaft, the point at which the steam is cut off from the cylinder may be regulated.

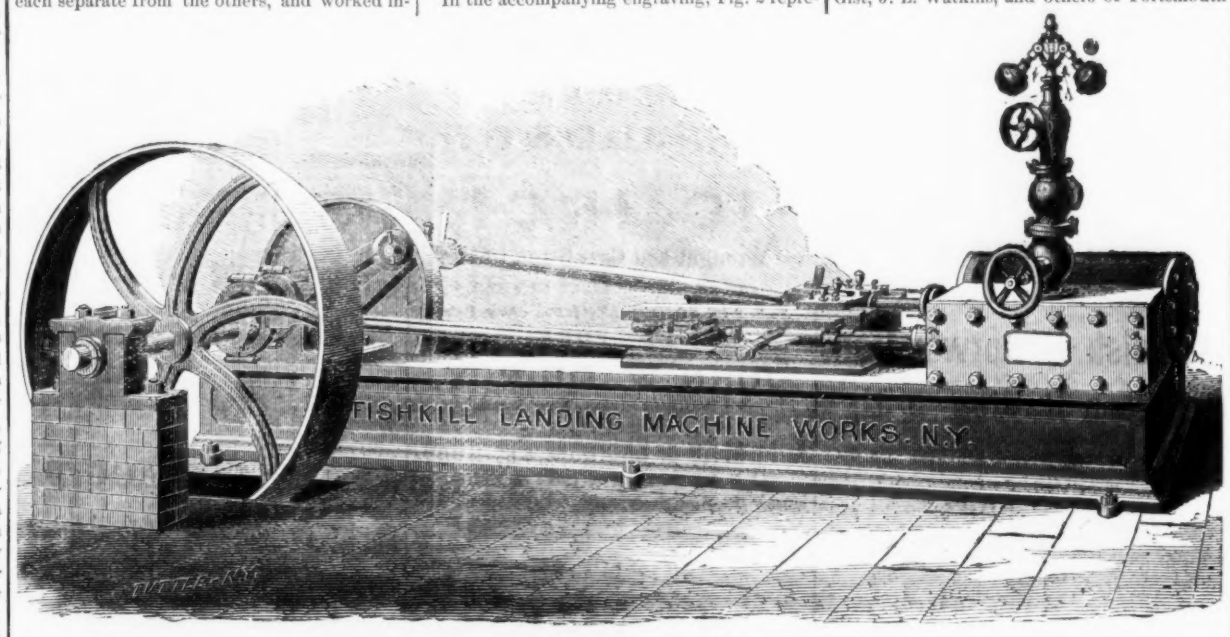
The Loomis patent variable cut-off engine is also one of the specialties of the Fishkill Landing Works.

The valves in this engine are four in number, each separate from the others, and worked independently. The steam valves are cylindrical in form, slightly conical, and so well balanced that they can be easily moved with the fingers, under any pressure of steam. Their motion is vibratory, and is caused by the revolutions of a cam on the governor spindle, which is placed in the center between the two valve rods. The governor, which is very sensitive, regulates the supply of steam needed in the cylinder to perform the duty required; and, while it allows the valve to be opened wide, thus admitting the steam at nearly boiler pressure, it regulates the work by "cutting off" when sufficient steam has been admitted to perform the labor. No throttle valve is used, because the steam is required to pass into the cylinder as rapidly as possible, in order that its power may not be reduced at the commencement of the stroke. The cam which revolves on the governor spindle is of peculiar shape, so that, when the governor balls are elevated, it presents less surface to the tappet bar connecting with the valve-rod rock-arm, and more when the governor balls are depressed, the contact taking place during the time the valve remains open, as it closes instantly when the cam has passed. The exhaust valves are similar in form to the steam valves, and are operated by an eccentric cam on the governor spindle.

The governor is of the Buckingham patent, and is so constructed that a given variation of the balls causes the spindle to move vertically over a large space, which gives a very sensitive governor.

The design of this engine has been to supply the greatest strength where it is most needed to resist strain; and to secure the greatest simplicity possible with a good performance, and of a general harmony of design and adaptation of each part to the service required from it.

These works we are informed possess facilities for building all kinds of machinery, but make a specialty of steam engines, having an unusually large assortment of patterns of both horizontal and vertical engines. About five hundred of their engines are now in operation in various parts of the country. Among these may be instanced the compound engine used by the canal boat William Baxter, which made three competitive trips last season; a vertical engine, cylinder 42 by 42 inches, with variable cut-off, for the grain elevator of Messrs. J. & E. Buckingham, in Chicago; and a horizontal engine, cylinder 36 inches diameter, for the planing mill of Messrs. Linsley & Co., at Burlington, Vt. They are now building the engines and other machinery for the rolling mill and blast furnace of the Hudson River Iron Company, at Poughkeepsie, N. Y., and a horizontal engine of the type illustrated in our engraving, cylinder 20 by 36, for Messrs. McClave Bros., planing mill, 22d street and Eleventh avenue, N. Y.



IMPROVED HORIZONTAL STEAM ENGINE—WITH SLIDE VALVE AND CUT OFF.

Clay's Cutting Tools.

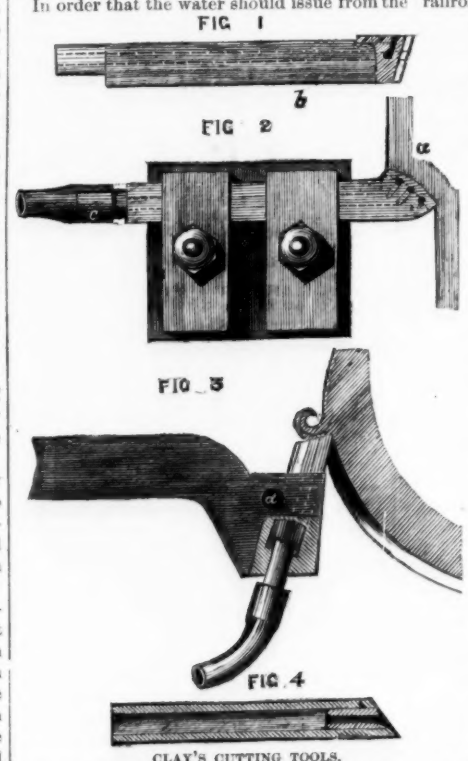
At the last meeting of the British Institution of Mechanical Engineers, a paper was read on a mode of increasing the cutting power of tools employed for shaping metal by taking means to keep the cutting edges cool by a powerful jet of water. These tools, of which we give illustrations, were designed and patented by Mr. William Clay, of Birkenhead.

In turning metals (wrought iron for instance) a slow drip of water is usually allowed to drop upon the metal shaving that is being turned off. A portion of this water afterward finds its way on to the tool in a tardy manner, but the shaving being in the way the water hardly ever reaches the precise cutting edge or point of the tool, and therefore considerable difficulty is experienced in keeping this cutting edge or point cool, the consequence being that the machine can only be driven at a very limited velocity, whereas if the cutting edge or point were kept cool the speed of the turning or cutting operation may be very considerably increased.

The object of Mr. Clay's plans is to effect this either by making the cutting tool hollow and then forcing a jet of water, or other cooling medium, through it, so as to impinge upon or near to the cutting point or edge, or, if the nature of the work precludes the use of a hollow tool, then to arrange a cooling jet so as to impinge on the outside of the cutting point or edge of the tool, care being taken, as far as possible, to cause the water to strike between the cutting tool and the shaving that is being cut off the mass. By this means the frictional or other heat that is produced by the operation of the cutting tool on the metal will be carried off by the water or other cooling medium, so that the machine may be driven at increased speed.

In the accompanying engraving, Fig. 2 represents in plan one mode of adapting the invention to a lathe. In this figure, *a* is the piece of metal to be operated upon; *b* is a hollow cutting tool shown detached in elevation at Fig. 1, in which the point is shown in section. It will be seen from these views that the tool is bored out, and to one end of it is adapted a flexible tube, *c*, made of India rubber connected with a water tank, so that a jet of water may be made to pass along the inside of the cutting tool and run over the cutting edge between this latter and the shaving that is being removed.

In order that the water should issue from the exit opening with sufficient force and velocity, and in order, moreover, to avoid weakening the tool, the exit opening or openings (as there may be more than one) at the cutting end of the tool is or are contracted as shown in the figure. The main water channel is bored or otherwise made longitudinally right through the tool, and is plugged at the working end. The exit opening or openings are then drilled in a diagonal direction into the main channel so as to cause the water to issue as near the cutting edge as possible, and after striking the under part of the shaving to impinge on or flow over the cutting edge.



CLAY'S CUTTING TOOLS.

Fig. 3 is a sectional elevation of one of Mr. Clay's hollow cutting tools fixed in a holder. The tool is here made with a shoulder, the tail end of the tool being less in diameter than the forward end, and this shoulder rests on a corresponding shoulder made in the socket of the tool holder, so that any possibility of the tool being forced back in the holder will be effectually prevented; *d* is a pin or cotter to hold the tool securely. When the cutting end of the tool has been worn down to such an extent as will render it necessary to raise up the tool in the holder, this can be effected by placing one or more washers under the shoulder, as indicated in the figure. The water is supplied through a channel in the tool through a flexible tube.

Instead of boring out the tool in the manner described, it may be made of a piece of steel tube, the working end of which may be plugged, as seen in Fig. 4, with wood, metal, or other suitable substance, through which an opening is made for the current of water. When the tool cannot be conveniently made hollow, the water may be supplied in a jet, which is made to impinge between the shearing and the cutting edge of the tool. In some instances it may be advantageous to combine both plans. Mr. Clay's tools are favorably regarded abroad, and we reproduce the description and cuts for the information of American iron workers.

The Hamilton Iron Company.

The Portsmouth *Tribune* says:

A new furnace company, styled the Hamilton Iron Company, has been organized under the laws of Missouri by the following named gentlemen: John P. Terry, Henry A. Towne, Elias Crandall, L. T. Murfin, J. H. Ricker, E. D. Ricker, Branson Miles, Samuel McConnell, William Shaffer, C. P. and H. R. Tracy, Jacob Gist, J. L. Watkins, and others of Portsmouth and vicinity, and H. T. Mudd and George W. Opdyke, of St. Louis, Missouri, and Shelton Sturges, of Geneva, Wisconsin.

They have purchased a fine tract of mineral and timber lands, comprising 7000 acres, located in the counties of Washington and Crawford, Missouri, near the line of the Atlantic and Pacific Railroad. The land is rich in the blue specular and red oxide ores, from which a very valuable neutral charcoal iron is made. The ore banks and furnace site will be from three and a half to five and a half miles from the railroad, and near the Merrimac River.

The capital stock of the company is $150,000, and they paid $50,500 for the 7000 acres of land, including ore banks and furnace site. The land was purchased from the Missouri Smelting and Mineral Land Company, organized in 1866 for mining lead and copper. J. P. Terry, J. H. Ricker, E. Crandall, H. A. Towne, and H. T. Mudd are the directors. Messrs. Terry and son, Charles E. Crandall, and William Shaffer have left for the place of operations, and it is proposed to erect a charcoal furnace of the usual size at once. They expect to get in blast about the 1st of August. The furnace will be located from 12 to 15 miles from the celebrated Scotia (charcoal) furnace.

The St. James, Scotia, and Moselle furnaces on this road are already in blast.

The name of the furnace is selected out of compliment to the memory of Robert Hamilton, deceased, who was one of the most honorable and successful furnacemen of the Hanging Rock iron region.

The company comprises some of our best citizens and several practical furnacemen of experience, and we hope they will make the enterprise a success. It certainly starts off with encouraging prospects. The post-office address of the company is Sullivan, Franklin county (71 miles from St. Louis, on the line of the Atlantic and Pacific railroad), Missouri.

The Loomis Ærial Telegraph.

—The bill incorporating the Loomis Ærial Telegraph Company passed the Senate a short time ago, and has, we believe, received the signature of the President. The Pittsburgh *Chronicle* is responsible for the following discription of the invention: "This ærial telegraph scheme is a novel thing. The plan of Dr. Loomis, the inventor, is to telegraph from a high peak of the Rocky Mountains to the highest attainable peak of the Alps, at which point a tower is to be erected, on the top of which a huge mast is to be placed. An apparatus capable of collecting electricity is to be put upon the upper end of this mast, by means of which, at such elevation, it is claimed a stratum of the atmosphere will be reached which is charged with electricity. Ground connections, the same as in ordinary telegraph, will be erected. The electrified stratum of atmosphere will, as with the ordinary single wire and ground connection, make a complete circuit, and it is claimed that the slightest pulsation of electricity at one tower will produce a similar pulsation at the other. The company is to have a capital stock of $200,000, with the privilege of increasing the same to $2,000,000, if the interest of the company shall require it. The business and objects of the corporation are stated in the bill to be to develop and utilize the principles and powers, and otherwise operate any machinery run by electricity for any purpose."

Coal Discoveries in Washington Territory.—The *Mining and Scientific Press*, of San Francisco, gives some valuable facts regarding the coal deposits of Washington Territory. They are very extensive, but for want of capital little has been mined, but within the past three years the Seattle coal mines have been opened, and the production is rapidly increasing. A new vein has lately been discovered on Cedar River, which empties into Washington Lake, near Puget Sound. It is from nine to ten feet in width wherever it has been opened or crops out. The parties owning the ledge have a charter for a narrow gauge railroad to Seattle, 16 miles distant, and propose to open the mine systematically as soon as they are able. This vein is about six or eight miles from the Seattle Coal Company's mine, and in the same coal field. The following extracts from a letter of a contributor to the Oregon *Commercial Reporter* gives some interesting information regarding the mines: The Seattle Coal Company is a stock company organized under the laws of California. The mine is located 17 miles from Seattle, 4 miles by railroad (narrow gauge), and the balance of distance by water over lakes Union and Washington. They are taking out an average of 80 tons per day. The coal is conveyed from the mine to vessels at the port without change of cars. Last year they mined 15,000 tons. This year they have taken out 35,000 tons. The expenses are as follows: $3·50 per ton to mine it and put it in ships at Seattle; $5 per ton for freight, leaving a net profit of $4 per ton, or 30 per cent. Mr. Charles J. Shatwick is superintendent; the other owners of the stock live in San Francisco and New York. The mines are very large, in fact the different mines on this Sound now known would supply the United States for 50 years.

Raw Material and Finished Commodities.—Mr. Henry Carey Baird notes the following interesting facts relative to the additional value given to raw materials by the application of labor and machinery: Straws manufactured in, and now received from, Switzerland, Germany, France and Italy, are sold in this country at as high rate as $10,000 per ton. Flax is manufactured into cambrics, laces, and embroideries, and sold for, on the average, more than $10,000 per ton; while in some of the finer description of French and Swiss goods of this character we pay as high as $100,000 per ton. "Point d' Alencon lace," says J. S. Homans (Cyclopedia of Commerce, 1858, p. 1157), is worth from $500 to $600 per pound." Shoddy cloth of the "old clothed" wool of Europe, is very extensively sold in the American market in cloths for coats and ladies' cloaks, and in table covers, at times as high as $5 per pound. The following statement from the London *Artizan* shows to how great an extent lead, copper, cast iron, wrought iron, and hemp are increased in value by the application of labor and machinery—the value table given in each instance is the price of one dollar's worth of raw material after it has been fashioned into the shape indicated, as follows:

LEAD.	
As sheets	1·32
Small printing type	30·00
COPPER.	
Household utensils	4·92
Fine metallic cloth	52·00
IRON (cast).	
Ornamental	48·00
Ornaments for the person	148·00
IRON (wrought).	
Twisted gun barrels	240·60
Penknife blade	650·00
Polished steel buckles, etc	900·00
Scissors (finest)	450·00
Sword handles (polished steel)	780·00
HEMP.	
Cordage and cable	4·00

Peculiar Boiler Deposit in the Steam-Space.—E. Mategezek relates a peculiar formation of a boiler deposit in the space not filled with water, but with steam. The sp. gr. of this material was found to be 1·388, and its chemical composition, in 100 parts, as follows: Water, 2·831; fatty matter, 1·430; organic matter, 21·995; silica, 21·713; sulphuric acid, 6·947; chlorine, 0·139; oxide of iron, 3·836; phosphoric acid and alumina, 7·878, lime, 15·752; magnesia, 4·151; sand and clay, 12·283. The water used as feed water for this boiler was taken from the river Elbe, but the large proportion of organic matter is in a measure due to the fact that the feed water is taken from the condensed hot water from the air pumps, the boiler being used in a beet root sugar works and refinery.—*Artisan.*

Siberia is rich in some things, despite its frigid climate and untillable soil. The Somsk gold mines yield an annual return of $11,000,000, immense quantities of iron and copper exist, and there are valuable mines of coal, tin, lead, and zinc. Beautiful specimens of jasper and porphyry are found in some districts, while the fur product is not surpassed by any country in the world.

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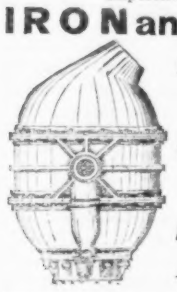
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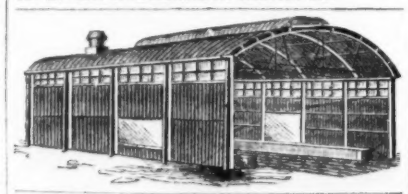
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How the Pacific Railroad is Kept Clear of Snow.

We take the following from an interesting letter to the Chicago *Tribune:*

Observation along the extended portions on which the bed lay, from a few inches to three feet above the natural surface, showed the latter hight to be the minimum requisite to give sufficient freedom and space for the wind to keep the bed clear of the snow. As respects the cuts, the slope which the snow took in the above instance—7 in 125—was naturally suggested as the proper one for the sides of the excavation. The true protection, then, lay: First, in raising the track, both on the open surface and in the cuts, to a hight of at least three feet; secondly, in widening the cuts at the bottom sufficiently to give freedom and space to the snow, on either hand, and sloping the sides 7 in 125. For cuts of moderate depth, this plan has been found to answer without the use of sheds; in the case of deep cuts, however, the widening and sloping of which would be very expensive, snow-sheds have been retained or supplied. Both Superintendent Sickels and Assistant Superintendent Clark accordingly became convinced, while "at the front" last winter, that at least two-thirds of the blockaded district could be effectually protected by simply raising the track; but, as ordinarily done, this was a work of far too great magnitude to accomplish in a single season; still, the necessity was urgent that the entire line be made secure against the uncertain emergencies of the present winter. A system was devised which should be far more expeditious than that of teams and manual labor. The locomotive was utilized, to draw both plows and scrapers, constructed on the following simple plan: A massive beam, extending across the bed from ditch to ditch, was fitted with two heavy plows on each end; and this "gang-plow," attached to a locomotive, was drawn at a maximum rate of two miles per hour; the locomotive scraper followed, excavating the furrows thus made on both sides, and throwing the dirt up against the bed. Each set of these equipments was equal to a force of 200 men; and by this means an aggregate of about 100 miles of the bed of the snow region across and beyond Laramie Plains was raised from three to seven feet. Cuts were also widened—largely by the use of the steam shovel, operated by the locomotive—where their great depth did not preclude widening. To protect the deep cuts, where fencing was deemed inadequate, miles of new and substantial sheds have been built on a plan fully obviating the defects of the old fences; and the latter have been thoroughly repaired, lengthened, or rebuilt of better material. On this work exclusively, a force of 300 men was employed during the entire season. To the snow fences, additions amounting to 65 miles of the road have been made; and in many places, and for considerable distances, the fences have been placed in parallels several lines deep. The heavy work of last winter materially damaged the track at many points, and in all such cases new iron has been laid, and the track of the entire mountain division has been put into better condition than ever before. At the shops of the road, the already large equipment of snow-plows has been increased and greatly improved. Seventeen plows have been remodelled, and four mammoth ones constructed, weighing from 35 to 50 tons, and costing an average of $3000 each.

One of the most serious difficulties encountered last winter lay in obtaining an adequate supply of coal for extra consumption in clearing track over so great an extent of blockaded road. To meet any similar emergency in future, the storage capacity in that district has been increased 50 per cent., by the erection of eleven large coal-houses, which are kept constantly filled, ready for siege. In this connection, mention may be made of the arrangements for good water supply. During the construction of the road, and in its operation to a recent date, water had to be hauled from Green River, for all the uses of the road as far west as Rawlins, 142 miles. A system of artesian wells is in progress, with the most satisfactory results so far as completed. In the Bitter Creek Basin, four are in operation, from 500 to 1200 feet in depth—three carrying the water thirty feet and the other fifteen feet above the surface. The water obtained is pure and unfailing. The system is being extended east and west of this locality, to all points where the surface water is in any degree alkaline. Evidently this water supply is a *sine qua non* to the efficient operation of the road in the winter.

So far this winter, not a train has been delayed on the Union Pacific Road by snow, and there cannot possibly be greater liability to delay on this line, with the apparatus, offensive and defensive, above described, than there is on roads in the same latitude East. Indeed, as the event has so far proved, not nearly so great liability; for, on our roads, subject to greater occasional snow-fall, the providing of such extensive and costly works would be well-nigh impracticable.

Metallurgical Notes.

We take the following metallurgical notes from the *Bulletin* of the Iron and Steel Association:

SEPARATION OF PHOSPHORUS IN PUDDLING.—According to the Berggist, Nos. 92 and 94, for 1871, some trials made at Thale in the Harz, in puddling Ilseder pig iron along with 1⅛ per cent. of its weights of fluorspar, have resulted in producing a fibrous bar iron when rolled which is not at all cold short, a result altogether unexpected, since this pig iron is known as one of the cheapest brands of German iron, for notwithstanding that it contains from 3 to 5 per cent. manganese and only about 0·1 per cent. of sulphur and silicon, it has, on account of its large percentage of phosphorus, been much more difficult to sell than the common irons, like that made from minette, which only contains 0·2 per cent. of manganese, but is, however, not so rich in phosphorus as the Ilseder pig.

ESTIMATION OF MANGANESE IN SPIEGELEISEN.—In order to arrive at an approximative estimation of the amount of manganese in each tapping of this variety of iron as quickly as possible, in order to control the working of the blast furnaces, it is customary at Schisshytan, in Sweden, merely to determine the iron by dissolving it, and titrating with permanganate of potash; by adding 5 per cent., which is the average amount of carbon and silicon present in the spiegeleisen, to the percentage amount of iron found, and substracting this sum from 100, the amount of manganese is found with sufficient accuracy for the object in view.

ANALYSIS OF SWEDISH CHARCOAL BESSEMER PIG.—This pig iron, made expressly for conversion into steel by the Bessemer process, when tapped direct from the blast furnace at Westenfors, without any addition of spiegeleisen, has been analyzed by Mr. Brusewitz:

Carbon combined	3·342
" graphitic	1·710
Silicon	·748
Phosphorus	·031
Sulphur	·035
Manganese	3·119
Iron	91·045
	100·000

SUPERHEATED BLAST.—The temperature of the air employed in smelting iron ores with charcoal on the Continent seldom exceeds from 600 to 700 degrees Fahrenheit. In Austria, however, recent accounts from the Steyrmarck district report that the employment of hot blast of about double this temperature (1200 degrees Fahrenheit) has been attended with much superior results in the charcoal furnaces. In the manufacture of speigeleisen, a decided improvement in the smelting, especially as regards the amount of manganese reduced into the metal, is found to result from the use of an extremely hot blast.

TESTS FOR BESSEMER STEEL RAILS.—At the Bessemer Steel Works, at Gratz, belonging to the Austrian Southern Railway Company, the steel rails are submitted to two tests: 1st, for elasticity, which consists in placing a weight of 17½ tons on the middle of the rail, while resting upon two supports, placed respectively at a distance of three feet from one another; and, 2d, for fracture, in which the rail, when supported as above, must stand, without breaking (any amount of bending is allowed), a blow of one ton, let fall from a hight of fifteen feet.

BESSEMER STEEL FOR ARTILLERY.—Experiments are now being carried on at Neuberg, in Steyermarck, Austria, with a view to the employment of this class of steel for artillery purposes. When casting, the molten steel is, by means of hydraulic power, subjected to a pressure of 350 tons, the effect of which is to cause the air holes or pores in the external parts of the mass of steel to move toward and accumulate in the center of the casting, where they do not affect the strength of the cannon, since they are eliminated in the act of boring out its calibre.

UTILIZATION OF BLAST FURNACE SLAG.—In order to adapt the slag to such purposes as ballasting for railways, road metal, &c., the blast furnace slag at the George-Marie furnaces at Osnabruck, in Hanover, is allowed to flow from a hight of eight feet into water, the effect of which is to convert it into large bean-shaped gravel; as fast as this is formed, it is lifted out of the water by an endless chain of buckets, which load it directly on to the railway trucks.

Coal in Scotland.

The following interesting condition of affairs is reported by the *Iron and Coal Trades Review:* The past week has probably been the most anxious one that has ever been experienced in the Scotch coal trade throughout its whole history. The wholesome advice given by Mr. M'Donald to the miners, certainly has not been observed to any great extent, so far as returning to work is concerned where the reduction of wages, actual or threatened, had not amounted to more than 1s. per day. There is quite a coal famine in some places. In Greenock, for example, coal is being retailed at 40s. per ton, and a considerable number of sugar refineries and other public works in that otherwise busy hive of industry, are almost, if not actually, at a standstill for want of coals. One of the prominent sugar refineries actually prevailed upon the master of a coal laden vessel, bound for the Highlands, who had occasion to call at Greenock, to dispose of his cargo at 30s. per ton. The famine is even felt in several of the coal districts themselves, and at some of the coal pits, bings of dross and coal refuse are being called into requisition, which have, in some instances, been lying aside as practically worthless. Such material is now being readily purchased for manufacturing purposes at from eight to ten shillings per ton. The daily average coal traffic along the Lesmahagon branch of the Caledonian Railway is about 800 wagons, but on Friday last not more than 200 wagons passed, and they were chiefly from the gas coal pits in the Lesmahagon district, where the men continue to work.

Some colliery proprietors who prefer to carry on their pits instead of permitting their men to go on strike have yielded to their demands. In the Motherwell district coal has advanced fully two shillings per ton. From Kilsyth, in Stirlingshire, it is reported that, notwithstanding that the miners are all fully employed at the reduced rate of one shilling per day, coals are no cheaper, nor can they be readily got by consumers in the district. The output from the various pits is railed off and boated to Glasgow and Greenock. In the Dysart district, in Fifeshire, there has been a reduction of one shilling per ton in the price of coal, but in others there has been an advance. The men generally remain in *statu quo*, working four days per week, and in Ayshire there is practically no change in the position of affairs. In some instances, however, the employers have not insisted on the proposed reduction of two shillings per day.

Coal in the South.

We take the following from the Memphis *Avalanche*: The recent coal famine in Memphis ought to set capitalists, business men, and property holders to work devising means to avert, if possible, the recurrence of such another famine in the future. Steps ought to be taken at once to see if we have not coal fields at our own threshold, beneath the ground we walk on. There is no other portion of the globe where the coal measures are so widely distributed as on the continent of North America. From Nova Scotia to the Pacific there is a succession of vast coal basins, showing that on this continent, more than any where else, the fern flora flourished during the carboniferous era. North of Mason and Dixon's line the coal industry has been largely developed because the increasing wants of growing manufactures demanded fuel, both cheap in price and easy of access. By the geological investigations which these researches called for, it has been demonstrated that the great Mississippi Valley was in the carboniferous era a vast fern forrest, and subsequently it became a great inland sea, submerging for many hundred miles in breadth the country on both sides of the Mississippi River, and that by the agency of the water standing in the great forests this coal was formed. The States of Indiana and Illinois may be said to form the northeastern division of this coal field, while Western Missouri and Kansas form the northwestern division. The limits of this latter branch are circumscribed at the south by the Ozark mountains and those of the former by the mountains of West Virginia, Kentucky, and East Tennnessee. Coal has been found south of these limits both in Tennessee and on the Ouachita River, in Arkansas, showing that there is a southern as well as a northern Mississippi coal basin. But heretofore very litte has been done toward the development of this wealth. The great forests have been found sufficient to supply all demands for fuel to a section of country almost purely agricultural. But all this is changed now. The late war has led the South to manufacturing, and in the city of Memphis alone there is more coal consumed than the whole South needed thirty years ago. The question now is whether coal can be found here. We believe that such is the case. In Illinois and Indiana the coal is found at a depth of from 100 to 500 feet, while in Kansas and Missouri the coal-measures are at the surface, and veins from 3 to 7 feet in thickness can be seen cropping out at the banks of the water-courses. In the Memphis district there is a stratum of from 100 to 200 feet of river alluvium to be gone through with before we come to the lime and sandstone. If these latter belong to the tertiary and post-tertiary eras, we will have to go deeper to find the coal measures. If, however, the sandstones and limestones are carboniferous, we reasonably hope to reach coal veins at a depth of from 300 to 400 feet. The fact that this section of country has changed gradually from a sea or lake district, will go far to support the theory that no violent revulsions of any magnitude have taken place here since the carboniferous flora was destroyed, and that consequently the coal deposits have not been swept away by the action of the floods of later geological epochs. The expense of boring for coal would be but trifling, and the benefits which would result from the experiment, if it were to prove successful, would be very great. That in course of time this matter will be tested we sincerely believe, but it ought to be tested now.

A Railroad Commission in Missouri.—The St. Louis *Republican* reports that a bill has been introduced in the legislature of Missouri for the establishment of a board of Railroad Commissioners in that State. It provides for three railroad commissioners, to be appointed by the Governor, and to hold office for two years. No one shall be a railroad commissioner who is interested, either directly or indirectly, as a stockholder, bondholder or otherwise in the management of any railroad. The commissioners are to receive each a salary of $5000 a year. They are to keep a record of all complaints against railroad companies, and to investigate all casualties on railroads; they are to examine the condition of every railroad in the State at least twice a year, and require unsafe bridges and tracks to be repaired. If a disregard of the instructions of the commissioners shall result in an accident involving loss of life, or the maiming of passengers, the superintendent of the road and the engineer and conductor in charge of the offending train shall be deemed guilty of a felony, and, on conviction, be imprisoned in the State Prison for not less than two nor more than ten years. The commissioners are authorzed to suspend the running of trains over an unsafe bridge or track till it shall be repaired, giving notice of such suspension through a newspaper, and to recover from the company $1000 a day for every day, after a time fixed, that the unsafe track or bridge shall continue unrepaired. They are authorized to require railroad companies to maintain telegraph lines along their roads. Any railroad company that shall refuse, neglect, or disregard the instructions of the commissioners shall forfeit its charter. The prosecuting attorneys of the several counties are directed to institute suits under the instructions of the commissioners, receiving for fees 20 per cent. of the penalties recovered. The commissioners are to make a full report of the general condition and conduct of the railroads in the State to each session of the legislature; and it is made the duty of each president or other officer in charge of a railroad in the State to make an annual report to the commissioners November 1 of each year, of the stock of his road, its equipments, the business transacted, the gross earnings and expenditures, the number of accidents, the number of persons killed, the number of domestic animals killed and wounded, and the amount of damages paid, together with other matters that the commissioners may require. The commissioners are to have their office in St. Louis, and may employ a competent clerk. They are allowed $4000 a year for office rent, clerk hire, and other necessary expenses.

The Quincy Lead Mines.—The Quincy (Ill.) *Whig* says: We have more than once alluded to the work in progress near Curtis' distillery, in the southern suburbs of this city, of sinking a shaft to the lead veins in that vicinity, and we herewith give some interesting facts relative to the discoveries made, and what is proposed to be done. It will be remembered that Messrs. Becraft, Gillham & Co. commenced boring at the place indicated some time last summer with the following result: At 152 feet from the surface they struck a small deposit of coal, just above the first soap-stone; at 385 feet from the surface they found a vein of lead ore 4 feet 2 inches in thickness; 7 feet below this another vein 18 inches thick, and 14 feet below this they bored 10 inches into another deposit of lead, and then determined to sink a shaft, though they are confident of finding a second vein of coal at no great distance from where they stopped boring. From 152 feet below the surface of the first lead ore they found soap stone and shale; just above the first vein of lead was pipe clay and black jack, and below it was yellow ochre, which was also found above and below the second vein. The depth of the bore is now 406 feet, and the shaft—which is 7 by 12—has been worked to the depth of 143 feet, through 9 feet of soil and the balance hard rock. The cost of the work up to date, including everything excepting the time of the owners, is $11,000. The estimated cost of completing the shaft to a depth of 406 feet from the surface is from $3500 to $5000, including curbing, and the time to accomplish the same from 90 to 120 days. At the time when they stopped work they were making 2 feet per day in hard rock, and can easily make from 3 to 4 feet per day in the softer material below. This work cost them about $200 per week, including powder, coal and incidentals, and they worked 16 men, running 3 eight-hour shifts.

Iron in Delaware.—The Milford *News* says: Forty years ago Sussex county, in this State, had several iron blast furnaces, bloomeries, and forges, and manufactured from the ore of her own mines a very superior article of both cast and wrought iron. We remember that even 30 years ago hammered bar iron of a very superior quality was shipped from that county to the Baltimore and Philadelphia markets. It was smelted and hammered at what is still known as Collins' Forge, and was celebrated for its ductility, malleability, and strength.

At Millsboro, also, Col. William D. Waples and Samuel Wright had a furnace and iron foundry, and manufactured stoves, plows and other castings from this ore. This ore produced such a quality of iron that it was largely in demand for use in other States to mix with ores that produced iron of less ductility. The ore in those days was smelted with charcoal and run into blooms or pigs, and made into bars under the trip hammer. Though the product sold at the highest price, this industry was finally destroyed by foreign competition. Now that the iron business is revived under the beneficent operation of protection, why cannot this mining, smelting, and manufacturing of iron be resuscitated?

At a later period, and after all these furnaces had all suspended, and the sound of the trip hammer was no more heard in the country, thousands of tons of this ore was raised and transported to other States for smelting. Milford and Millsboro for several years shipped large quantities of it for this purpose, and at a comparatively recent date only has this transportation ceased. There is plenty of this ore still in this county, and probably millions of tons are awaiting the resurrection of enterprise that shall restore this important business to our people.

The Mineral Wealth of New Jersey.—We take the following from the message of Governor Robinson, of New Jersey, presented to the legislature of that State on the 13th inst: "New Jersey is rich in mineral wealth, and the geological survey has done much to develop it. The labors of the State Geologist during the past year have been directed principally to the iron ore region in exploring for new mines and examining extensions of former openings. Valuable maps of the mining country have been prepared. The iron mines in this State are now more extensively worked than at any former period. The State Geologist estimates the production of all the mines for the year at 600,000 tons of ore, which, at five dollars per ton at the mines, amounts to $3,000,000."

Explosion in a Foundry.—On the Evening of the 21st. inst., while the workmen at Baleman & Garrison's foundry, at Pittsburgh, were running a ladle filled with several tons of molten metal, the crane hook broke, letting the iron fall into a hole which contained some two feet of water, and a terrific explosion followed. The roof of the building was carried away and the walls cracked. The houses in the vicinity had windows badly shattered. Several workmen were slightly injured. The damage to the foundry was $10,000.

The *Alta California* says that the Pacific Submarine Exploring Company of New York is about to employ the kind of diving bell so successfully used at Hell Gate, for the collection of gold sand off the California coast. It is well known that at and off Cold Bluff, on the northern shores of California, the sea-beach has extensive ranges of golden sands, which have been worked for years, and are now producing no small annual crop of gold, remarkable for its purity. The sand is black, and contains titaniferous iron and visible particles of gold. There was a rush, some years ago, to these new diggings, which failed, because they fell short of extravagant expectations. The gold was there, and provokingly visible. But the tide was great, and the period of low water too short for working. Then the wet sand had to be carted over roads of dry sand, and up the cliffs, and thence miles to water for washing out the gold in a crude way. This kind of work does not suit the crowds who rush to new places, expecting to toil little and pick up much. As usual, the back-rush reported unfavorably, and people ever since only remember the abandonment. It was found that the sands grew richer the further the breakers were penetrated, and life-boats that sounded in six to ten fathoms beyond, found the sandy bottom still richer in gold of remarkable brightness. It seemed as if the gold washed up on the beach came from these submarine banks, but it was deemed impracticable to realize the riches covered by such a depth of moving waters. Now it is believed that this diving bell will place the gold within reach of the searchers.

Dr. R. Angus Smith has made some interesting observations upon the deterioration of stone through the influence of the acids that fill the atmosphere of cities, especially those which are bituminous coal burners. He found that even the most silicious stones, are really very seriously affected. His experiments grew out of the excessive decay in stones observable in so many English cities. Believing the acid in the rain to be the cause, he supposed the endurance of a silicious stone might be measured by its resistance to acids. He proposed, therefore, to use stronger solutions, and thus to approach to the action of long periods of time He tried a few specimens in this way, and with most promising results. Pieces of stone of about one cubic inch in size were broken, by allowing a hammer to fall upon them, the number of blows required to produce fracture being counted. Similar pieces were steeped in dilute acid; both sulphuric and muriatic were tried, and the latter preferred. The number of blows now necessary was counted. Some sandstones gave way at once, and crumbled into powder, some resisted long. One very dense silicious stone was but little affected. It had stood on a bridge (in a country place, however), unaltered for centuries. These trials are merely the beginnings of a very extensive set of experiments about to be undertaken by Dr. Smith, with a view to establish a standard of comparison.

The Canal de Fond-Piquette Colliery Company, at Vaux sous-Chevremont, in the Liege district, Belgium, has just cut a bed of good coal, 40 inches in thickness. This discovery is, of course, of some importance. Quotations for coal have experienced scarcely any variation in Belgium. Coke is still obtained with considerable difficulty.

A new iron-clad man-of-war was launched at Copenhagen on the 12th ult. It is a casemated steamer of 2500 horse-power, 250 ft. in length, 47 ft. wide, and gauging 15½ ft. Denmark possesses now three iron-clad frigates, with, respectively 16, 18, and 24 cannon, and 4 floating iron-clad batteries, with, respectively, 2, 3, and 4 cannon.

Russia proposes the erection of large manufacturing establishments at Tashkend and in other parts of Central Asia, so as to strengthen Russia in its new possessions and to prevent the competition of England. The establishment of such factories would greatly increase the trade of Russia in Central Asia, which is now much hampered by the distance from the centers of production.

It is stated, with reference to the probable future of the tin trade, that within fourteen or fifteen months from this time five thousand tons of pure tin metal will be exported from Sydney, Australia, and that not less than that quantity can be shipped regularly for years to come.

The American Gatling gun is making its way into the armies of Europe, nearly every European nation having adopted it. Russia has given this gun a fuller approval than any other country, having introduced it as a distinct arm of the military service.

Cleveland has fourteen rolling-mills in operation, against eight in 1870. In 1871 Ohio, manufactured over 76,000 tons of rolled and hammered iron—one-tenth of the whole amount made in the United States.

It is announced that the Buffalo, Corry & Pittsburgh Railway has been purchased by the Allegheny Valley Railroad Company. This gives the latter road, by way of the Oil Creek and Allegheny River Railway, a direct line between Buffalo and Pittsburgh.

A block of native copper, weighing nearly 105 pounds, was recently found in Leland township, Grand Traverse county, Michigan. As the locality is several miles distant from any copper mines, the discovery excites considerable attention.

A valuable quicksilver mine has just been discovered in Sonoma county, California. It is represented to be exceedingly rich, and measures will be taken at once for its development.

There are thirty-two blast furnaces in the Shenango Valley, located as follows: Sharpsville, nine; Sharon, six; Wheatland, four; Middlesex, four; New Castle, eight; Wampum, one. Total capacity, 319,300 tons.

A copper vacuum pan was recently constructed for an English sugar refiner, costing of £700, and being twelve and one-half feet in diameter and thirteen feet deep. In it twenty-seven tons of moist sugar could be boiled in two and one-half hours.

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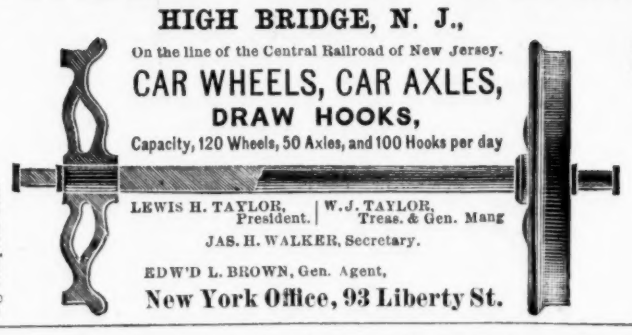

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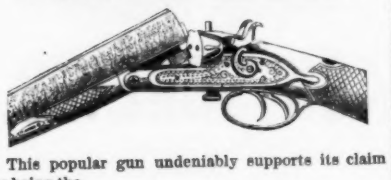

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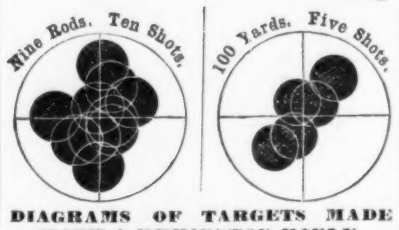

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The British Iron Clads—What Shall be Done with Them?

We take the following from the editorial columns of the London *Times:* The science of shipbuilding has advanced during the last twenty years at a marvelous rate of progress, and its professors are not to blame for the doubts and hesitations which now are felt. It is not the naval architect, but his employer who is at fault. We do not know what to build, because we do not know how we shall fight our future naval battles. It is creditable to us, as leading naval power, that while providing ourselves with iron clad ships, monster guns, powerful rams, and various torpedoes, we have made almost no experiments at sea to ascertain the efficacy of these tremendous implements of destruction? Any one who is acquainted with the subject will bear us out in the assertion that our efforts during the last fifteen years have been exclusively directed toward building a steady ship to carry unprecedented weights of armor and artillery, without an attempt to decide what we shall do with it when built. The channel fleet is our experimental squadron; but, with the exception of one artillery trail of the Monarch, Captain and Hercules for five minutes each at a rock, twice as long and four times as high as a ship, off Vigo, we believe that the whole of its experiments have been directed to practice in fleet-sailing. Great progress has thus been made in the drill for rendering our fleets mobile, and a new code of signals for night and day has been introduced with marked success. But the strategy of the navy remains where it was. No one knows in what order of battle our future sea fights will be fought. No one knows whether the ram, the torpedo, or the gun will be the principal weapon of naval warfare. In the year 1868 the admirals and captains of the channel fleet were directed to report to the admiralty upon the efficacy of the ships under their command. With, perhaps, a single exception, their published reports altogether ignore the question of naval tactics, and confine themselves to matters of seamanship, such as the handling and behavior of their ships at sea. In 1871 and 1872 papers were read and discussions held upon "the attack and defence of fleets," at the United Service Institution, and the general complaint of all the officers present, from an admiral of the fleet to a young lieutenant, was that no experiments are allowed by the admiralty to satisfy the craving for knowledge on the subject which exists in all ranks of the navy. How can we lay down an efficient navy in absolute ignorance of naval tactics? How can naval lords of the admiralty direct with wisdom the constructors of the navy if they have hazy notions as to the use and employment of ships and their armaments? How can the naval architect wisely advise his employers if the test of experiment afloat is for any cause refused to him?

Two causes, which have now quite disappeared, assisted to reduce the tactical developments of our forefathers to a very few simple and clear principles. They were the limit put upon movement by the wind, and the almost inevitable destruction of all motive power very soon after joining in combat with the enemy. To close with the enemy became the object of every enterprising commander, and it was a sort of axiom, for which the authority of Nelson was invoked, that in case of doubt no captain would do wrong who laid his ship alongside the enemy. But now, concurrently with the enormous growth and power of naval guns, two shells from which may outweigh the whole broadside of one of Nelson's frigates—our men-of-war are supplied with steam power which will carry them at fourteen knots an hour through or past the hostile line, and it is one of the few axioms which appear to be unquestioned that a certain rate of speed is absolutely essential to secure the safety of a ship in action. No shot that can be fired is more dangerous to the life of a vessel than a successful ram from an enemy at speed, and speed is the necessary condition for enabling a ship to avoid the ram. Thus it may readily be seen that steam has revolutionized naval warfare. Given two hostile fleets, in what order of battle and with what weapons shall the assailant commence the attack? It is here that there is no agreement whatsoever among naval men. How, they say, can we decide whether to fire as we advance, hoping to disable the enemy before we close upon him, or to reserve our fire for a broadside on passing, unless we have some *data* for knowing what will be the chances of our hitting before we meet? The author of the papers read before the Royal United Service Institution inferred, as the best approximation to the truth which he could deduce from the few experiments known, that nine out of every ten shots fired at 1000 yards by one ship approaching another at ten knots an hour would miss, and that the successful tenth shot would probably glance and fail to injure the enemy. He therefore held that what is called "end-on" fire would not be resorted to in action, but that captains would still reserve their fire for close quarters. Now, if there be truth in this, it is obvious that it must largely affect the problem of naval architecture. One of the alleged advantages of the turret-ship is that it can fire as it advances in a line with the keel, and so get first shot in the dangerous duel. And a large part of the ingenuity of our naval architects has been directed toward securing, by "recessed ports" and other ingenious contrivances, a similar power for the broadside armament. But if "end-on" fire cannot be profitably used, the reason for these contrivances vanishes, and one of the governing considerations of our naval construction during the last ten years will be shown to be an error and a snare. The artist, indeed, will be at a loss to portray our future fights at sea. Instead of the scenes depicted in the painted hall of Greenwich Hospital, two approaching fleets will resemble the passing of two railway trains, each running at twelve or fifteen miles an hour. Three minutes will be the utmost time during which the bow artillery can be profitaly used—one shot at 2000 yards, and barely time to load again before the fleets are passing by and from each other at the combined rate of twenty-five miles an hour.

The remedy for this discreditable ignorance, so far as relates to the use of guns at sea, may be supplied by merely constructing a canvass screen target, representing the midship section out of water of a modern ironclad. If this were dropped at sea and fired at by a ship or ships approaching it at various rates of speed, a few days' practice would show the actual value of bow fire. But experiments of a much more elaborate nature will be required before the use of the ram and the torpedo can be fully illustrated. The Russian navy—of which Mr. Reed has told us somewhat, but the merits of which Mr. Goschen affects to disregard—has carried out a long and interesting series of experiments between single ships in the use of the ram. The result has been to show that, with equal skill and speed, it is very difficult for one ship to ram another, but that with perseverance it may be done. If we remember rightly, twenty minutes in every case sufficed for one or the other ship to ram its antagonist. It was not always, however, the original assailant which succeeded. A failure to hit immediately placed the aggressor in a position of danger. Moreover, the gunboats which made the experiment had to rely entirely on the ram; so that the problem was not complicated by any consideration of the action meanwhile of the guns. It is most desirable that the officers to whom in case of war we shall trust the honor of the English flag should solve for themselves the question of the efficiency of the ram. So terrible is the force of all the implements of naval warfare, whether gun, ram, or torpedo, that it is quite within the bounds of probability that a few minutes may decide a naval action, and that a single false step will be irretrievable. We trust that the naval estimates of the coming year may provide for a full series of experiments afloat of every description that we require; that these experiments may not be confined to a few favored officers, but may be conducted in connection with all our squadrons; that the subject of naval tactics may be taught systematically at the new naval college; and that the Pope's reported good wishes on Tuesday last to the late chief constructor of our navy, that 1873 may be happier than 1872, may be fulfilled, in a manner which, perhaps, was not intended, by placing the tactics and *materiel* of the British navy on a sounder and more intelligible footing.

The Chemistry of the Boston Fire.

A conflagration so extensive and destructive as that which laid waste a considerable portion of the city of Boston in November, must be interesting and instructive in its chemical aspects, and we design to briefly direct attention to some of these. The process of combustion, whether it involves immense structures, or whether it is confined to the narrow limits of a candle or common friction match, is strictly a chemical process. The burning of Boston was a chemical experiment on a vast scale, and withal so costly that the spectators hardly wish to see it repeated. To burn a substance is simply to change its condition; the matter involved is not destroyed, but from chemical action it is forced into new relationships, or into new forms of matter. There was nothing whatever actually destroyed by fire in this city on the night of November 9, but an immense amount of material was changed from a valuable or marketable condition into one having no value. The sugar, coffee, tea and spices of the grocer; the prints, flannels, laces and silks of the dry goods dealer; the opium, gums, oils and extracts of the druggist; the salts, acids, alkaloids and reagents of the chemist, consumed on that night were but common and valueless elements thrown into complex combinations by nature or art, so as to meet or supply human wants. In the condition in which the hydrogen, carbon, oxygen, nitrogen, the metals, etc., existed, of which these diversified substances were composed, they were needful to feed us, keep us warm, or relieve us when ill; they therefore, as related to our wants, had value; we were willing to exchange gold for them, a metal of such noble characteristics and so sparsely disseminated upon our planet that we find it to be a convenient representative of value. We had toiled for months or years to form these chemical substances and fabrics, or we have sent our ships to every point of the globe to gather them up, and we had stored them safely, as we supposed, in our warehouses. But the fire came, and in sixteen hours the whole was resolved into carbonic oxide, carbonic acid, water, and a few tons of ash; products which we can neither eat, wear, nor utilize in any way to advantage. We do not need the forms of matter which the fire left for us, but we did need the same elements in the other forms, as we had them before the conflagration.

Combustion is a wonderful process. It may go on rapidly, as it did in November, and lay waste a city in a single night, or it may proceed slowly, and require centuries to effect the same changes. Our immense stores of merchandise, which were resolved so rapidly into invisible forms, would have passed through the same changes (in short, would have been burned) if no fire had come nigh them. This result would have been inevitable, if we had consumed them as food, worn them as clothing, or allowed them to waste from neglect. The burning would have been as actual as that of which we were eye witnesses. The same amount of heat would have been developed, and the resultant products the same. All organized bodies are constantly undergoing a process of decay, which is slow combustion, and although we do not see the light or feel the heat, it is accompanied by them. The world of organized matter is certainly destined to be burned, but we prefer the slow form to the rapid, as we have had a notable example of the latter which will suffice for a lifetime.

It is quite easy to understand that wood and other organized bodies can burn; but the combustion of buildings constructed of brick, stone and iron presents a problem not a little puzzling to many. A fire, sweeping through the streets of a city, lays low whole blocks of buildings, into which nothing combustible enters, save the wooden partitions, floors, and staircases, and these, while burning, afford combustible material enough to expand and topple over our thin walls, and render the ruin complete. Buildings considered fire-proof, that is, those constructed without wood, can be destroyed by fire, if ignitible material is burned within them. The Palace of the Tuileries and the Hotel de Ville, in Paris, burned by the wretched Commune, were fire-proof buildings, and without the aid of our American kerosene oil, or some similar inflammable material, they could not have been ruined as they were. It required nearly 300 barrels of kerosene oil to destroy the Tuileries. The miscreants hoisted a barrel or more into each room, and knocking out the heads, allowed it to flow over the building, and when it was thoroughly saturated they set it on fire. The metal and stone used in the structure were rapidly expanded by the intense heat, the walls were pushed outward, the roof fell in, and the destruction was complete.

Our Boston fire has demonstrated the influence which extreme heat has upon granite structures. They do not withstand its influence so well as those built of brick, and therefore are not as safe buildings in time of large conflagrations. Pearl street was lined with granite buildings, and after the fire the work of disintegration was so thoroughly accomplished that fine granite sand covered the pavement several inches deep. Water we recognize as the antagonist of fire, and it was most liberally supplied in our great conflagrations. It seems a little paradoxical at first view, the act of pouring an agent on to a fire with the design of arresting it, when we remember that fluid itself is composed of two elements, one of which is highly combustible, and the other the grand supporter of combustion. It has been stated in several journals that water thrown upon the fire in the form of spray was decomposed into its gaseous condition, and therefore actually fed the flames. Now this is not correct. We doubt if a single one of the millions of gallons employed was thus decomposed. It requires a most intense heat, equal to a blast furnace, to decompose water, and it also must be accomplished under peculiar conditions. Water thrown upon buildings is often dissipated in steam by contact with flame before it reaches the burning body. Most of that used in this city was thus rendered ineffective, as the buildings were high, and the water was subdivided into mist before reaching the point upon which it was directed. Water quenches fire by physical contact with the burning body, covering it, and thereby excluding the contact of atmospheric oxygen; also it instantly reduces the temperature of ignited substances by vaporism. By the sudden change from a liquid to vapor it robs the substance of the heat necessary to keep up combustion, which is thus extinguished.

The burning of our warehouses, at the time of the great fire, filled with chemical products, was in one sense an interesting exhibition. We cannot say that it was calculated to awaken much enthusiasm so far as we were personally concerned, as the spectacle was a little too costly for that. It was paying too high for the pyrotechny, no matter how grand the display. The nature of the substances burned was peculiar, affording intense heat and flames of divers gorgeous colors. Numerous packages of the salts of strontium, calcium, magnesium, potassium, copper, barium, etc., were consumed, which produced a variety of brilliant illuminations, and these, with alcoholic preparations, carbolic acid, nitrate of ammonia, and hundreds of other highly combustible bodies, gave to the flames a fierceness and coloring not observable elsewhere.—*Boston Journal of Chemistry.*

The Ohio miners, in the Tuscarawas and Mahoning Valleys, are moving to secure, "by wholesale and just laws, the proper protection of life, health, and limb, in the coal mines." They complain of the present law as inefficient. In the original draft, provision was made for the appointment of mine inspectors; and it is asserted that this part of the bill was defeated by the efforts of the proprietors. Moreover, it is asserted that the law as it stands at present is a perfect dead letter, "not a single mine-owner or operator paying the least regard to any of its provisions." This was demonstrated by the catastrophe of the Atwater Slope, in Portage County, last July, when half the force in the mine was subjected to a horrible and lingering destruction, for want of means of egress at the time of the accident to the main opening. The petitioners hope for a thorough reform from supervision and inspection by State authority.

A matter of much importance was understood to have been considered at the directors' meeting of the New York Central Railway Company held last recently at the private office of Commodore Vanderbilt, in Fourth street. This subject was the best method of raising the sum of $40,000,000 to double-track the road. No decision was arrived at, however, it is said, in regard to the matter. A report was circulated, however, that $30,000,000 seven per cent. currency bonds would be issued, and $10,000,000, or £2,000,000 sterling, in six per cent. gold bonds for negotiation in London.

The coal deposits near Cladno, northwest of Prague, are estimated at 16,000,000,000 tons. It covers an area of six hundred and fifty miles, hardly of which one-fiftieth part has been opened, owing to the want of railway communication and industrial spirit.

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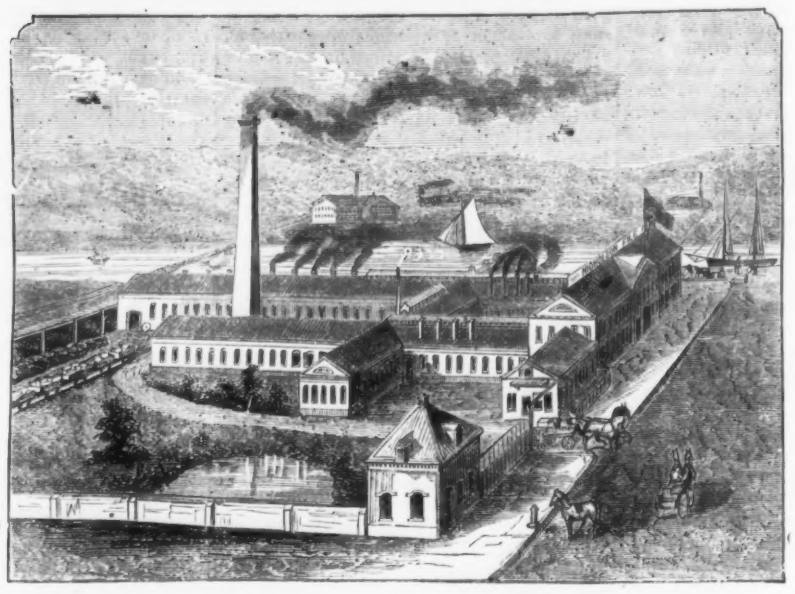

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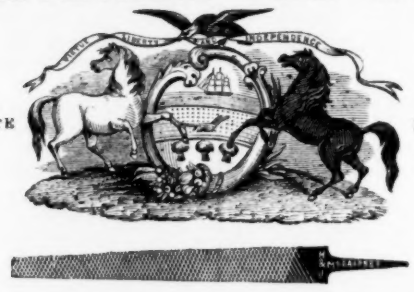
TRADE  MARK

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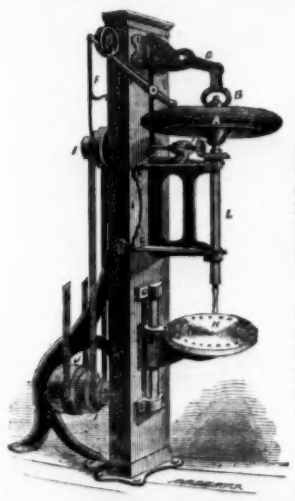

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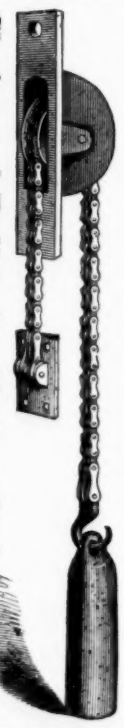

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BUSINESS ITEMS.

NEW YORK.

Messrs. Otis Bros. & Co., 348 Broadway, have recently built an extensive addition to their manufactory, giving it a frontage on two streets of 200x100 feet. They have also put in new engines, machinery, etc., thus increasing their facilities for manufacturing elevators, hoists for blast furnaces, etc. This company has now two hoists, recently erected at "Superior Furnace," Pittsburgh, Pa., which are working very satisfactorily, and have a number of others nearly ready to run, at Union Iron Works, Newburgh, O.; Crowther Iron Works, Newcastle, Pa.; Lochiel Rolling Mill Co., Harrisburgh, &c., and have a number of other orders on hand which will demonstrate the fitness of their hoist for all classes of furnaces throughout the country.

Cobanks & Theall, New York Iron Works, have about 300 men on their daily roll, and are engaged in building a 30 by 9 engine for the new ferry boat Tappan Zee, two boilers for the steamer H. Livingston, two for the steamship South America, overhauling the steamers St. John, Drew and Dean Richmond, of the People's Line, and jobbing on the Mount Washington, Merrimack, Rising Star, Henry Chauncey, Northern and Southern, Chrystenah and Alexis.

Delamater Iron Works have 700 men engaged, and are building another new compound engine for the new Mallory steamer building at Mystic, beside being busy with mining "plants."

NEW JERSEY.

The Boonton Nail Factory, started over 100 years ago, has grown to cover over 60 acres.

The rolling mill at Rockaway, which is now in successful operation, is having new machinery, including a large turbine water wheel, added to it.

PENNSYLVANIA.

The North Pennsylvania Iron Works, at Bingen, will be put into blast on February 1, after a delay of several months' duration from an accident.

In addition to the purchase by the Reading Railroad Company of the Big Pond iron property, and 6000 acres of land along the line of the projected Harrisburg and Potomac Railroad, in the Cumberland Valley, for $200,000, that company has also leased, for ninety-nine years, the Carlisle Iron Works property, with its fine ore bed.

Work has actively commenced on the new iron span of the Pan-Handle Railroad bridge over the property of the Connellsville Railroad. The span will be similar in style to the present channel span of the bridge, and will give considerable ground for depot purposes of Pittsburgh, Washington, and Baltimore Railroad.

The new mill erected at Millville, by Messrs. Graff, Bennett & Co., of this city, at a cost of half a million dollars, will contain five Danks puddling furnaces. These furnaces are also in successful operation at Chattanooga, Tenn.

At the Delaware River Iron Works business is brisk. The Pacific mail steamship Colon left the yard to be taken to the Morgan Iron Works, to receive her engine. The Erie ferry-boat has nearly all her plating on, and Mallory's new steamer is being put up rapidly, about 40 frames having been crossed. The iron for the other new vessels contracted for has arrived, and work upon them will soon be commenced.

The Pennsylvania Tack Works, at Norristown, have been enlarged.

The Keystone Needle Mill, located on Pigeon creek, near Lawrenceville, Chester county, is turning out from 25,000 to 30,000 needles per week.

The Pottstown Iron Company will soon commence the erection of large additional mills, and the repair shops of the Reading Railroad at that place are also being greatly enlarged.

The Wheatland Rolling Mill and three of the furnaces are idle, awaiting the action of the miners. It is rumored that the managers intend tearing down furnaces Nos. 1 and 2, and building one large one in their stead.

Messrs. Schall & Co., Norristown, are building an addition to their iron mill, at Stoney creek. The building will be 120 ft. by 35, and is expected to be ready for work on the 1st day of March.

WEST VIRGINIA.

Dewey, Vance & Co.'s furnace, the Riverside, at Wheeling, 18 ft. bosh by 60 ft. high, made, during the month of December, 1872, over 2008 tons iron. On 21st December she made over 81 tons. The whole of the product was foundry and open gray forge iron.

CONNECTICUT.

The New York, New Haven and Hartford Railroad Company propose to build a foundry at Oyster Point.

MASSACHUSETTS.

The Corrugated Iron Company, of Springfield, have just contracted to furnish $10,000 worth of triple iron shutters to Field, Leiter & Co., of Chicago; $5000 worth for the Chicago *Tribune* building, and $3000 worth for the Boston *Post* building. They have put up, on an average, ten buildings a week in Boston since the fire. They are now building an iron church in New York, the interior ornamentation of which is of galvanized iron.

The machine for making flat-bottomed paper bags, invented and patented by Miss Maggie Knight, has been built and perfected at the Ames Company's works, in Chicopee, and is pronounced a complete success.

OHIO.

The papers incorporating the Morgan Coal and Iron Company, at Irondale, with $50,000 capital, have been filed with the Secretary of State.

The Kritch & Crane Manufacturing Company, Cleveland, are now employing 80 men, and are running to their full capacity, turning out 20,000 sets of axles, and using 800 tons of iron per year. This company make a specialty of their solid collar axle.

The Marietta Iron Works have resumed work after a suspension of about a month, consequent on the failure of a large business house intimately connected with the works.

The "Steubenville Iron and Bolt Company" is now the style of the concern heretofore known as the "Valley Forge and Bolt Works."

The National Saw Manufactory, D. Price & Son, proprietors, Cleveland, has been two years under the present proprietorship. Two three story buildings are occupied, one 30x120 feet, fronting on Center street, and the factory 30x120 ft. fronting on West street. Twenty-five men are employed, and the business amounts to $2000 per month, which will be increased during the coming spring.

A Norwalk capitalist will establish an edge tool factory at Clyde, if the citizens will give $4800 in aid of the enterprise.

The Burgess Steel and Iron Works are now making cast steel of a very superior quality. The lower mill is running full force, night and day.

ILLINOIS.

The Chicago Car Wheel Company has filed its certificate of organization with the Secretary of State. The capital is $50,000.

For a month or more past the Belleville nail mill has been idle because of a scarcity of water. Owing to the scarcity of coal or water, and the high price of ore, the furnaces throughout the country are having a great deal of trouble.

Seventy-five coal mines are in operation in St. Clair county.

MISSOURI.

The Iron Mountain Railroad Company have a project on foot for building a bridge over the Mississippi at Belmont. Such a structure would add greatly to the business facilities of the road.

The car department of the new machine shops of St. Louis, Kansas City and Northern Railway, at Moberly, are capable of completing three freight cars daily, and the company expect to build their own passenger cars equal to the best.

A track is being constructed from the Bridge Company's works at East St. Louis to the piers, to run the heavy iron work directly out there and save a vast amount of handling from the cars.

MAINE.

A steam pump invented and manufactured by George Moulton & Son, machinists, Bath, has a good reputation.

Car Axles.—To prevent flaws in railway axles, a method of shaping them by rolling pressure, instead of by hammering, has been devised by an English engineer, the result being accomplished in two minutes instead of half an hour, as required by the ordinary plan—the axle being not only superior in quality, but more uniform in size, and is produced more cheaply. The machine used for this purpose consists of three rollers, regulated so as gradually to press more closely together, thus reducing the bar and extending its length to the required size. It is claimed that the benefit of this rolling process is to obviate flaws in axles, which so frequently cause disasters on rail ways.

M. E. Duclaux, who recently ascertained the existence of a small quantity of copper in cocoa and choclate, gives, as the best method to determine its presence, the precipitation of the metal in a platium capsule by the action of tin. If a series of determinations are made the capsules increase in weight. The variation of a capsule of 15 gms. may exceed 3 milligms. In one experiment he detached a grayish-black substance weighing 30 milligms, which he recognized to be spongy platinum, produced by the occlusion of hydrogen. The barks of cocoa were found to contain as much as 0·025 per cent. of copper. Less quantities were found in the kernel.

The *Mining and Scintific Press*, of San Francisco, says: There has been noticed a singular tendency in old silver ornaments and coins to become crystalline and friable. An ancient fibula was found in the island of Cyprus, and supposed to be at least 1500 years old, which, through the greater portion of its substance, presents a fracture something like that of cast iron, and its specific gravity has been reduced from ten to nine. It contains a little copper.

A vein of pure anthracite coal five feet thick has been lately found near the head of the Arkansas River.

The Central, Colorado, *Register* reports that a vein of copper from 12 to 15 feet wide has been discovered on the upper St. Vrain, in the Ward district.

Both the nail factories at Sharon are idle, owing to the strike of the nailers against the reduction of 10 cents a keg in their wages.

The Cambria Iron Company has opened a night school in the Third Ward, Johnstown, for education of boys who are employed at work in the mines.

England has built a steel steamboat ninety feet long, and drawing only twelve inches of water, for one of the rivers of Brazil.

The Rhine, at Wesel, is to bridged for railway use, and the bridge will be more than a mile and a half in length. It is to be a most perfect structure and to have two viaducts.

The British War Office has just received plans from Woolwich, for the construction of two 50 ton guns at the Arsenal. It is stated that the authorities of the royal gun factories have designed and are prepared to construct a 70-ton gun, which shall throw a projectile of 1400 pounds.

The New York, New Haven and Hartford Railroad Company are building a brass foundry at their works in New Haven, Conn.

A Type Foundry and an Agricultural Implement Manufactory have been established a Kansas City, Mo.

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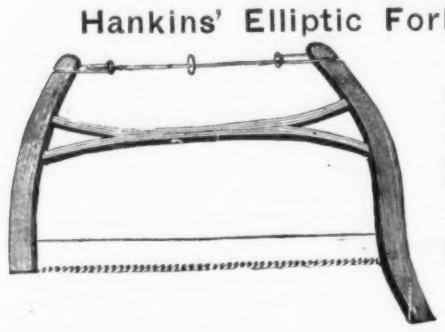

The annexed engraving represents HANKINS ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any centre bolt, secures to the Frame great strength and durability.

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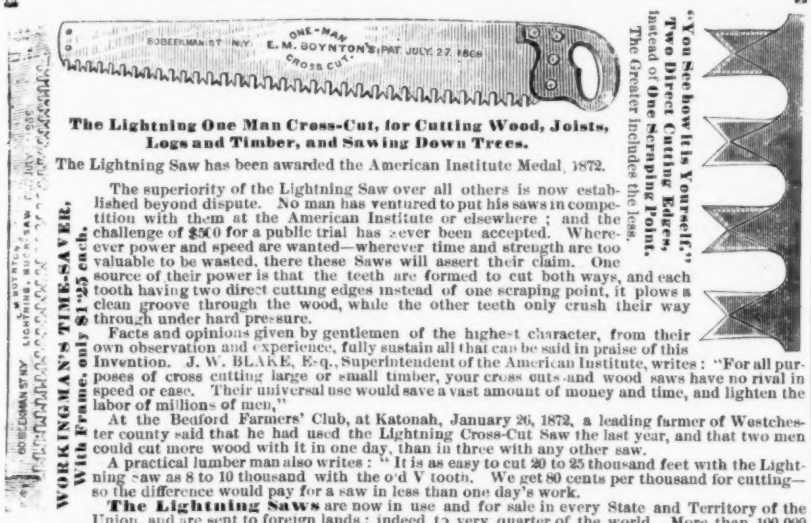
Front Edge View showing two points of M tooth dressed to cut in line on one side, and two on the other.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The Greater includes the less.

The Lightning One Man Cross-Cut, for Cutting Wood, Joists, Logs and Timber, and Sawing Down Trees.

The Lightning Saw has been awarded the American Institute Medal, 1872.

The superiority of the Lightning Saw over all others is now established beyond dispute. No man has ventured to put his saws in competition with them at the American Institute or elsewhere; and the challenge of $500 for a public trial has never been accepted. Wherever power and speed are wanted—wherever time and strength are too valuable to be wasted, there these Saws will assert their claim. One source of their power is that the teeth are formed to cut both ways, and each tooth having two direct cutting edges instead of one scraping point, it plows a clean groove through the wood, while the other teeth only crush their way through under hard pressure.

Facts and opinions given by gentlemen of the highest character, from their own observation and experience, fully sustain all that can be said in praise of this Invention. J. W. BLAKE, Esq., Superintendent of the American Institute, writes: "For all purposes of cross cutting large or small timber, your cross cut-and wood saws have no rival in speed or ease. Their universal use would save a vast amount of money and time, and lighten the labor of millions of men."

At the Bedford Farmers' Club, at Katonah, January 26, 1872, a leading farmer of Westchester county said that he had used the Lightning Cross-Cut Saw the last year, and that two men could cut more wood with it in one day, than in three with any other saw.

A practical lumber man also writes: "It is as easy to cut 20 to 25 thousand feet with the Lightning saw as 8 to 10 thousand with the old V tooth. We get 80 cents per thousand for cutting—so the difference would pay for a saw in less than one day's work.

The Lightning Saws are now in use and for sale in every State and Territory of the Union, and are sent to foreign lands; indeed to very quarter of the world. More than 100,000 purchasers during the year 1872 add their testimony to the claims of superiority of the Lightning Saws.

These Saws are of all sizes, from the fine hand-saw of one foot long, to the ten-feet California Cross-Cut. Two men can use the one-man Saw, by attaching one of Boynton's Patent Handles, removable at pleasure. Many imitations are abroad that are deficient in some essential features, and I am prosecuting infringers in the United States Courts. None are genuine unless they bear the name of E. M. BOYNTON, and the date of the four patents. Every such saw has been rigidly inspected before leaving the factory, and is warranted to coil to touch ends without injury. A six-feet Cross-cut and a Buck-saw blade will be sent for Six Dollars.

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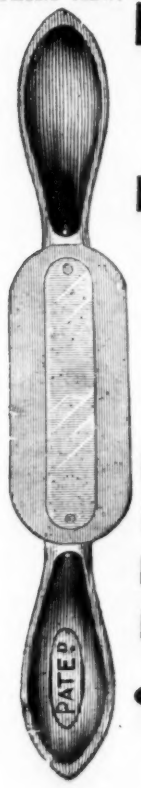

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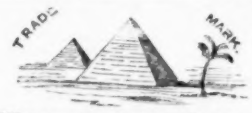

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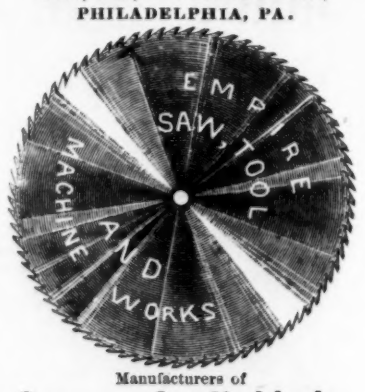

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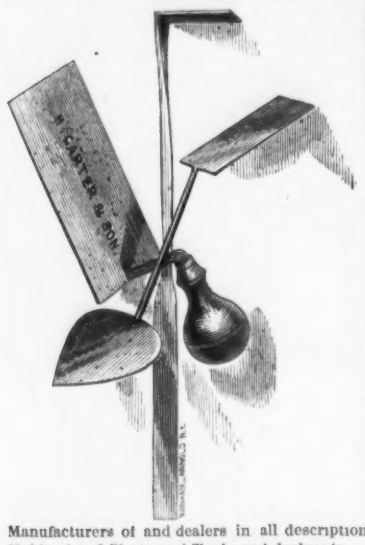

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James M. Berry, Newmarket, N. H., Writes Nov. 25th, 1872.—I think the Novelty is the best press yet invented; I am certain that it can be worked at a much greater rate of speed and do better work than any other amateur press.

Wm. A. May, Chicago & Canada R. R. Co., Morenci, Mich., Writes Jan. 10th, 1873.—I have recently been doing some very fine work on my little Novelty, in fact, quite throwing the "regular" job offices in the shade.

T. J. Turley, Franklin, Tenn., Writes Nov. 6th, 1872.—Some months ago I purchased one of your Duodecimo Novelty Presses, and I am happy to say that it works admirably and far exceeds my most sanguine expectations in the manner it does its work.

A. S. K. Holbrook, Ogdensburg, N. Y., Writes Nov. 26, 1872.—My Novelty does work equal to that of the best offices in this city.

P. P. Mast & Co., Buckeye Agricultural Works, Springfield, Ohio, Write July 29th, 1872.—Our Novelty Press works to our entire satisfaction.

Oscar F. Black, Vergennes, Vt., Writes Dec. 16th, 1872.—My Novelty works splendidly.

F. H. Pinkham, New Market, N. H., Writes Aug. 9th, 1872.—I like my "Novelty" better and better every day; I am surprised at the speed with which I work it.

J. A. Morrill, Fulton, N. Y., Writes Nov. 25th, 1872.—The Duodecimo Novelty Press which I purchased about two weeks ago works splendidly; cards printed on it seem as fine as engraved.

Geo. W. Biehn, Ripley, O., Writes Sept. 16th, 1872.—I have given the Octavo Novelty Press, which I bought of you about one month ago, a fair test with a chase full of type, and I like it better than ever.

Plumbago—Its Uses and How to Use it.

We take the following from advanced sheets to a pamphlet by Mr. Orestes Cleveland, about to be issued by the Dixon Crucible Co., of which that gentleman is president. The subject is one of much interest, and we commend to other manufacturers the willingness of the publishers to give valuable information respecting their business:

The purposes for which plumbago is valuable, the best methods of applying it, the properities and true character of the mineral itself, its sources, and the circumstances that surround it in the commerce of the world, the various grades and adulterations, are all points upon which great numbers, even of those who come in daily contact with it or use it, are by no means familiar, and many are wholly ignorant.

As it is coming more and more into use for purposes already known, and new uses are continually suggesting themselves, and as I believe it may be made an agent of great value in the mechanic arts, and become an important item in commerce, I am induced to issue this circular to the mechanics and manufacturers of the country. We have been 45 years engaged in the manipulation of plumbago, being the oldest house in the trade in this country, handle more of it now than any other single establishment in the world, and have been successful in its application to different branches of industry; we may, therefore, offer information without being accused of not understanding the subject treated.

The *Black Lead* of commerce, and what is so called by the trade, in first hands, is found only in Europe, principally in Germany, that which comes to this market being wholly from that country.

The *Plumbago* of commerce comes mainly from the island of Ceylon, in India, but is found in many parts of the United States, being mined successfully, however, only at Ticonderoga, in the State of New York. It is also mined to a small extent in the Ottawa region of Canada, though I believe so far without profit.

It is, therefore, known in trade as "Ceylon Plumbago." It is very refractory. I have experimented by subjecting for two hours a piece, with sharp projecting angles, to a heat that would melt steel, and on cooling found the sharpest points perfect; but it will exhaust if left on top of such a fire. It is found in veins in a pure state, is removed in lumps, and a selection of these forms the "prime lump" of commerce.

The formation most common in the pure state is that of laminated crystals, elongated at right angles with the sides of the vein, in not more than from four to six inches wide, but when the vein widens the crystallization often radiates from numerous centers, and the whole formation is very beautiful; the foliated variety is equally valuable and more brilliant, but rare in any quantity; the acicular form of crystal is not apt to be as pure in the lump, but is useful for most purposes; the granulated variety, the purest of all, is of little use for crucibles, but, with suitable manipulation, produces the finest grades for electrotyping and fine lead pencils, and is unequaled for lubricating. Pure plumbago is absolutely free from grit, when pulverized and rubbed between the fingers, and the polish produced in the same way is instantaneous and very bright, being like a darker shade of polished silver. It is also found mixed with iron, rhombspar and other forms of lime, the rock and earth in which the vein is carried, and many other foreign substances injurious for all the purposes for which pure plumbago is needed; so that much care is necessary in purchasing the raw material for a given purpose. Lime, for instance, is fatal to plumbago for crucible making. The plumbago is mined in the interior of the island of Ceylon, and is brought down to Colombo in bullock carts. It is there selected into grades; so much as may be finely broken up is sifted, and the coarser part of this is called "chips," while the finer part is called "dust." The "dust" from prime lump is, of course, very different in character from the dust left from the poorer grades of lump; and all of it, whether lump or dust, after being handled and packed in barrels in Colombo, becomes so black and bright, by the poor particles rubbing against the good, that the touch of an expert is required to distinguish between the grades.

The German black lead is not refractory, and is therefore useless for any purpose that brings it in contact with the fire. It has no value for the crucible-maker, or for stove polish, and is of but little use as a lubricator. It has a very low conducting power, even in its pure state, and the best quality that comes to market is far from pure. None of it comes in its original state as mined, but all of it is washed and floated, and so the grades are produced. In fact, it resembles a weak black clay more nearly than it does true plumbago in nature as well as in appearance. It is used often on account of its cheapness, when it would be cheaper to use the real plumbago even at five times the price.

As this is only intended for a preliminary circular, to be followed by an elaborate work, in which the subject will be fully treated, I shall pass at once to such points as seem to me useful for the trade, either as dealers or manufacturers.

PENCILS.

The first, and still the most widely extended, use of plumbago was for marking-crayons or pencils. The original method of manufacture was very simple. The lumps of mineral were cut into the required shape, and used in the natural state. At a later date it was sawed into the shape now used, and covered with wood, making the well known lead-pencil; but the Borrowdale mine in England, the best known, finally ceased to produce the mineral pure enough for the purpose, and that method was reluctantly abandoned. The refuse about the mine was then utilized by purifying and pressing it into blocks, and these, in turn, were sawed into "pencil leads." But the leads made in this way were weak and unreliable; and even had they been useful, the march of civilization required pencils of different grades, some soft and others harder, while the sawed leads were all alike. The present method consists in selecting the best granulated plumbago (found till recently only in Germany), pulverizing it very finely, and floating it in water through a series of vats, the coarser particles settling to the bottom of the first vat, the finer in the next, and so on, till after passing through several, that which settles in the last vat is considered fine enough for the purpose. A suitable clay is found as yet only in Germany, and this is treated to the floating process, the finest only being fit for use. The plumbago and clay are then mixed together with water to the consistency of cream, and ground together like grinding paint. When this operation is completed, the mass is plastic, water enough having evaporated to leave it in that state. It is then placed in a press and forced through an opening of the size desired for the pencil leads, and the leads are cut to a suitable length, straightened, and dried. When dry enough to handle, they are placed in a crucible, the air excluded, and subjected to a high heat, which bakes them and brings them out ready to be placed in the cedar for pencils. The different grades are produced by the different mixtures of clay and plumbago, the more clay the harder the grade produced. Skill in the manipulation, the exercise of great care as it progresses, and an expert to select the raw materials, are absolute pre-requisites for a perfect product, and our success has been greater than we hoped for, to start with. We shall have five grades of the commercial pencils, ranging from the very soft up to a very hard grade. They are smooth, reliable, and pleasant to use beyond any heretofore made, and are a credit to us and the country as an American manufacture. We are the only Americans making fine pencils, but are not unwilling to place our common commercial polygrade pencils by the side of the finest drawing pencils heretofore used by artists, ours being made by machinery only, while those are made by hand. All of the fine pencils used in this country have so far been imported, but we propose to turn that tide of trade homeward, and make Dixon's American Graphite Pencil known as widely as the use of written language. We shall have twelve grades of artists' drawing pencils. But the particulars can be learned better from a special pencil circular containing all the details, which we shall be glad to mail to all who feel an interest, whether in the trade or not.

CRUCIBLES, OR MELTING POTS, RETORTS, &C.

Forty-five years ago the only plumbago crucible was made by the Dutch, the melting pots used in most countries being made of clay and sand; but the late Mr. Joseph Dixon, the founder of our house, in 1827 made crucibles by using the plumbago found in the State of New Hampshire, of a quality so far superior to the Dutch black lead pots that he took the market from the first. He afterward saw specimens that had been brought from Ceylon as curiosities, by captains in the India trade, and finding them so much better than the New Hampshire plumbago, he procured a shipment, being the first importation of Ceylon plumbago in the United States.

Captain Rogers, who brought that shipment, is still alive and residing in Boston.

For crucibles, the pure lumps known as "prime lump" only should be used, ground to a fineness that leaves the particles bright and glistening when held to the light, but not so fine as to destroy this appearance. It is then mixed with clay, and the best known for that purpose is found at Mayence, comes down the Rhine, and is shipped to this country from Rotterdam. A small amount of finely pulverized charcoal should be added to render the crucible porous. As little clay should be used as will suffice to hold the plumbago together, the object in using the clay being only to cement the particles of plumbago.

After a thorough mixture, the crucibles are turned into the desired shape, much the same as pottery ware; they are then dried and baked in a kiln pottery.

In use the crucibles should be placed *in* the fire and not *on* it. The fire should surround the crucible to the very top.

If used with a blast, the blast should not strike the crucibles direct, but there should be coal for the blast to strike against.

The crucible should be kept in a dry place, the least dampness being fatal. If they are well made no annealing is needed, the object of annealing being only to complete the shrinkage that should be fully accomplished in the "burning" by the crucible maker. To provide against slight dampness, however, it is well, when possible, to use the crucible for the first time in a new fire, placing the crucible in the furnace at the time of lighting the fire, so that it heats up gradually with its surroundings. After the first time even this precaution is unnecessary. For melting brass, copper, gold, silver, or alloys of metals, a Dixon plumbago crucible should run from twenty to forty meltings, according to the fuel, draft, care, or other circumstances.

I have known them used seventy and even eighty times, with a natural draft and great care. For melting steel, they will run from four to six times. They can be made to run longer by care and a system of cleaning the slag from the surface after each melting, and coating the crucible with a mixture consisting of fire-clay, plumbago, charcoal and silica, pure fine quartz sand being, in my judgment, the most useful form of silica to employ; other substances have been used, but these are all that are of any real value. The carbon from the interior of gas retorts would be better than charcoal, but it cannot be had in quantity and is too hard to pulverize cheaply, and in consequence of that hardness is used successfully in electric batteries where a carbon is wanted.

STOVE POLISH.

Plumbago of the best quality is the only suitable material for stove polish; but lower grades will produce a fair polish for trade; and if the manufacturer is sufficiently expert in the examination, he may use the best grade of Ceylon "dust," but much of that which comes to market is too poor. For stove polish, the plumbago should be pulverized till the particles are too small to glisten, and what would otherwise be a shining mass becomes a dead black flour, and this appearance is so near that of the German black lead that the difference can only be discovered by handling. Plumbago cannot be pulverized fine enough in stone mills without running it over so many times that the cost is too great, and hence so much poor stove polish is found in market, offered by respectable manufacturers. The *Black Lead*, even when pulverized equally fine, has a harsh feeling between the thumb and finger, polishes but little, and with considerable rubbing, leaving a dark, poor polish; while the *Plumbago*, if good, feels smooth, almost oily, and polishes with very little rubbing, leaving a bright silvery polish. The finer the plumbago is pulverized the better it is for stove polish, as each particle should be so small that it flattens out at once on the iron, adheres to it, and polishes quickly; while larger particles will fly off and be wasted, as well as creating a dust, and requiring more labor to produce a fine polish. The polish from pure Ceylon plumbago will last on the iron for a long time, while the polish from the German black lead will burn a reddish brown when the stove is raised to a red heat. But as the German is less than half the price of the Ceylon, it is used with it as an adulteration, and for the cheaper kinds the German is used alone. The Ceylon is adulterated also with coal dust, pulverized slate, and many other substances. Dishonest makers of stove polish have this temptation, that only experts can detect the adulteration; and they succeed in palming off their mixtures because the particles of adulteration do not prevent the particles of plumbago from polishing the iron to a small extent. For instance, a thousand particles of adulteration and a thousand particles of plumbago, mixed together, can be sold at a low price, and the particles of plumbago will do the polishing, while most of the particles of adulteration will fly off in the process. It is true that the polish will not be as bright, and will require more time and labor to produce it, than if the one thousand particles of pure plumbago had been used alone, so that half the quantity of the pure article is better than the double quantity adulterated. In using the mixture, a great number of particles of the adulteration are rubbed against the iron with particles of plumbago outside, and in all such cases the polish on that point is poor and the plumbago wasted, because it cannot get to the iron. I do not believe that an adulteration of an equal number of particles of base matter with the best plumbago is worth more to use than from one-fifth to one-fourth the value of the pure article, and a vast amount of stove polish offered in market has not a fourth part of plumbago in it, and even that is of the lower grades, used only for its cheapness. A thimble full of the best plumbago, pulverized to the degree of that used by our company for stove polish, will, with the least amount of labor, polish as much surface as a quarter pound package of the usual merchantable stove polish, with much time and hard rubbing bestowed upon it, and the polish of the former will be creditable after that of the latter becomes a disgrace to a neat housewife. For stove dealers the difference is very great, a poor article being dear to them if it costs nothing. Perhaps no article except mustard can be so successfully adulterated as plumbago. I have been particular in speaking of the adulterations because the remarks will serve to enlighten those who buy for other purposes than stove polish. The proper methods of pulverizing I leave to be described in the future work. It is unnecessary here.

LIQUID STOVE POLISH.

Liquid stove polish, called by quacks in trade "inventions," and advertised as such, are mixtures in which there is no value except the little plumbago they contain, and the liquid is generally water, with a little soluble blue for a "blind." But recently there have appeared "inventions" of this sort which are made with various volatile fluids, the object being to apply something that will evaporate quickly. These liquids are of no value in themselves, plumbago being used in the mixture for the polish; the article would be better if made of only plumbago and water. But some of the mixtures are dangerous to have about a stove, from the explosive fluid used. A "patent" article I have seen is dangerous in any kitchen, and no insurance company would write a policy on any building where it is used, if the ingredients were known. Liquid stove polish is the dearest form in which it is put up, because, in order to make the mixture cheap, very little plumbago is used. A ten cent package of Dixon's stove polish would make a dollar's worth of liquid polish, and so you pay ninety cents for a worthless mixture, labor, bottles, cans, &c. Many makers of liquid stove polish are shrewd enough to use in their mixtures a good quality of plumbago, so that when it is tried, of course it gives a good result; but the deluded purchaser forgets that he can buy good plumbago for himself at many times less money.

STOVE DEALERS.

The remarks about stove polish and its adulterations should be read by every stove dealer; but the prejudices of the men who polish stoves for the stove dealers are deeply rooted, and their practice very stupid.

For instance, the majority of them still apply a varnish to the stove and then throw against the wet iron a handful of plumbago, allowing the surplus above what sticks to the stove to fall down into a large pan or box placed so as to catch it.

Now, if the plumbago is ground fine enough to be economical to use, this method would scatter it over the stove so that everything would be covered with it and a great waste be the result; but the most of that used by stove dealers is so coarse that this does not take place to any great extent; many dealers will not pay the price for good plumbago, pulverized fine enough to make it cheaper for them than a low-priced article. The varnish creates a disgusting odor when a customer gets the stove home and makes a fire in it, beside being more expensive than water. The proper way to polish a new stove is to mix the plumbago with water to about the consistency of cream, have it in an open dish, apply it to the iron like paint, and with a dry stiff brush polish quickly till dry, and this polish will be brighter and last longer than any varnish polish; and if the plumbago is right, this method is much more economical in material and labor.

LUBRICATING.

As a lubricator none but the very best plumbago will answer. For coarse and common purposes a plumbago not quite pure may be better than none; but for metal surfaces, journal boxes, car-axles, and all metal bearings, the plumbago should be pure and entirely free from grit. From the "prime lump" should be selected the very choicest lumps, and these should be pulverized till the particles will not glisten, but the mass becomes a dead black.

It cannot be made fine enough if separated by bolting, but must be separated by floating either in water or air. The simplest method is the water separation, and during the process it should be treated to a bath of dilute sulphuric acid, which will take up the particles of spar and iron, leaving the sulphates of lime, magnesia and iron easily washed out. Details of the whole process will be given in the future work. I have seen a very attractive preparation, very smooth between the thumb and finger, free from grit, and useful for many purposes, but the particles under the microscope show themselves in light scales instead of infinitesimal grains, and this was separated in water; but I think the defect was in the method of pulverizing, it having evidently been done by the use of stones.

The Dixon lubricating plumbago is pulverized by rolling 32-lb. iron balls, and is brought into infinitely fine grains, giving it more body and usefulness than the scale form.

There is no purpose for which plumbago should be as pure and as fine as for lubricating, except for electrotyping; but a large part of that which is offered for sale as a lubricator is adulterated, some of it being composed mainly of the German black lead, and is of no more use than common clay for the purpose. For blowing cylinders, the best quality of Ceylon, pulverized to the finest grade, pure and left with a good body, is the most economical. For engines, rolling mills, and machine bearings, the very finest should always be used. For wood bearings, after oiling with the plumbago a few times, the oil can be dispensed with, and the pure plumbago only applied in the dry powder. For metal bearings it should be freely mixed with oil. On hot axles or journals apply it freely dry, and then oil up as usual. If the railroads would all use the best grade of Ceylon plumbago, pulverized and prepared as described, hot journals would be very rare, and much delay and loss in freighting saved, as well as annoyance to passengers avoided. No substance is known that is so useful for lubricating as plumbago, and yet although used for that purpose more than two hundred years ago, the true method of preparing it was not known till within a few years, and it comes upon the market now little understood, and almost like a new material. It is destined to work great changes. Mixtures and quack nostrums are sold with sounding names, but the plumbago in them is all they contain of the least value, and it is better to use it pure.

ELECTROTYPING.

To the electrotyper absolute purity in his plumbago is a necessity, and hence any adulteration will discover itself at once on trial. The purest selected Ceylon lumps should be treated as described for lubricating, but the separating process should be carried to a finer point, and the acid bath given with care. The acid should be applied till with a thorough stirring no effervescence takes place, or bubbles rise to the surface. In electrotyping, the great conducting power of the plumbago asserts itself.

FACINGS FOR MOULDS, OR FOUNDRY FACINGS.

For this purpose plumbago is but little understood, although it is used to a limited extent. That it is valuable most skillful molders are aware, consequently much of the trash that is sold for "facings" is called plumbago to make it sell, without containing a particle of anything even resembling the real mineral. Most of that which is sold to the stove-plate and other smooth casting foundries for "black lead," is innocent ground slate, but some of it is a mixture of ground coal and German black lead, while charcoal would be better than either if ground fine enough. Ceylon plumbago combines the two qualities of a substance almost as refractory as asbestos, and the most perfect conductor of heat. These are the essentials of a perfect "facing." It cannot be pretended that any other substance will answer as well, unless it will combine and form a flux upon the surface of the metal. As for the mechanical operation of filling up the pores, or smoothing the mold, plumbago has no equal. For iron castings it need not be a perfectly pure article, but that it be pulverized very fine is absolutely necessary for economical work and the best results.

PIANO MAKERS.

Plumbago is employed to coat the bridge over which the wires are drawn, because of its perfect lubrication; it prevents the wire from adhering to the wood, and should be as free from impurity as that used by the electrotyper, but need not be pulverized as finely.

ORGAN BUILDERS.

It is used to lubricate the slides, and should be the same as that used by piano makers.

HATTERS.

The German black lead imparts a peculiar tone to the colors, and a softness and smoothness to the touch of felt hats. The very best lump only should be accepted. As it has once been washed and dried in lumps, they will readily separate again in water, and no pulverizing is needed.

GLASS MAKERS.

For coloring dark glass, for carboys, bottles, &c., the best German black lead is used in lumps, but no inferior grade will answer.

PAINT.

For paint, plumbago has long been known as possessing great value. The elements do not exhaust it, water sheds from it as from oil itself, and fire does not affect it. The grade need not be the highest.

BOAT-BUILDERS.

For the bottoms of boats and yachts it has long been much used, especially for racing-boats; but only the best Ceylon plumbago, very finely pulverized, is valuable.

REFRACTORY MIXTURES.

For tuyeres, pointing up furnaces, &c., take "prime lump" Ceylon plumbago, pulverized to scales as directed for crucibles. Then mix equal parts of Dutch pipe-clay, fire-clay, half the quantity (by measure, not weight) of charcoal, and the same half quantity of silica (pure quartz sand, ground fine, being the best); to this mixture add as much of the plumbago as possible, and leave the mass thin enough to work. It should be made just thin enough with water, so that it will run rather sluggishly.

POWDER MILLS.

Plumbago for polishing powder should be of the very best quality, finely pulverized. The German black lead is sometimes used, but is not economical for the powder-maker, and for high-priced powder is useless.

SHOT TOWERS.

Shot is polished with plumbago, and it should be absolutely pure, pulverized to the finest grade from Ceylon "prime lump."

BLAST FURNACES.

Plumbago thrown into the blowing cylinders, if adulterated with coal dust, will be worse than nothing. It should be pure and very fine, so that each particle that strikes the side of the cylinder will assist in polishing the surface. The German black lead is of no value, because as many particles of the clay character will stick to the iron, as there will be particles of the black lead character to lubricate the iron and render it smooth.

In the more extended work proposed to be issued, all of these points, and a great number of others that have already suggested themselves, will be treated in complete detail, and the general subject so amplified as to make it useful to the general reader as well as to the amateur and professional. I propose also to give information in regard to the methods of mining and preparation adopted in different countries, statistics of production and consumption, and speculations upon its character and future usefulness, so that the work will be worthy of a place in every library. Any person desiring a copy can have it mailed free by sending his address to the "Joseph Dixon Crucible Company," Jersey City, N. J. The company will be amply repaid by the publicity given to its own productions.

ORESTES CLEVELAND, President.

Sale of the Property of the Ames Plow Co.—We take the following from the *Boston Journal*: For about a year past negotiations have been in progress between the Ames Plough Company and Captain Isaac Taylor, a well-known merchant of Boston, for the sale of the factories, stock and good will of the company, and within a few days the sale has been consummated, Captain Taylor being the purchaser. The capital stock of the company is $400,000, which is understood to be the amount paid by the purchaser. The property includes the extensive factories at Worcester, which were established by the original proprietors of this establishment, Messrs. Ruggles, Nourse & Mason, and at Ayer, where the Messrs. Ames have for many years employed hundreds of workmen in the manufacture of agricultural implements; the stock and lease of the Quincy Hall warehouse, and the store in Beekman street, New York. Captain Taylor was formerly a member of the firm of Secomb & Taylor, who were extensively engaged in the South African trade. The Messrs. Ames still retain and carry on the shovel works at Easton, which were independent of the plough company.

The extent of the New Zealand coal deposits is comparatively great. In the Gray River district the quantity of coal obtainable, without sinking, is at least 4,000,000 tons, while in Canterbury about 3,000,000 tons can be obtained as easily.

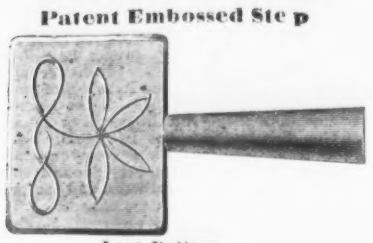
Chicago is now manufacturing railroad iron at the rate of 80,000 tons per year. This branch of industry will undoubtedly become one of the most important interests of that city.

New Jersey iron is now used by an extensive company in making sewing machines, instead of the British product known as Low Moor iron, which it previously employed.

A vein of zinc, said to be five feet deep, has been discovered at Olive Hill in Carter county, Kentucky, sixteen feet below the surface. It is thought it can be profitably worked.

H. D. SMITH & CO., PLANTSVILLE, CONN.

Patent Embossed Ste p

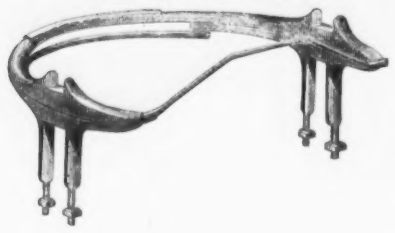


Leaf Pattern.

Established 1850.

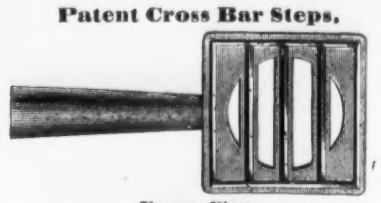
King Bolt Yokes.

No. 6 Fifth Wheels.



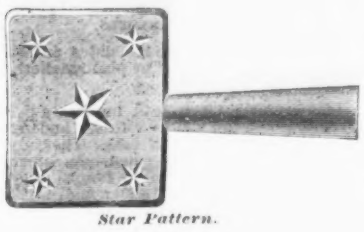
1871 Pattern Shaft Couplings.

Patent Cross Bar Steps.



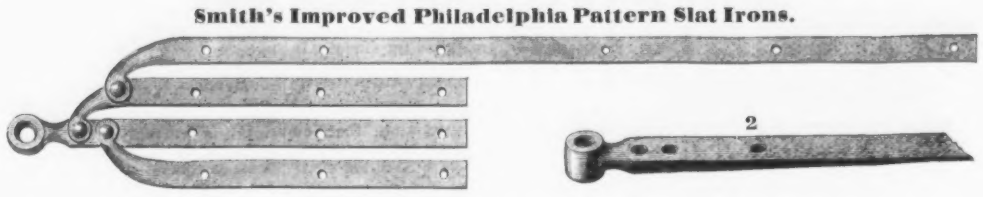
Upper View.

Lower View.

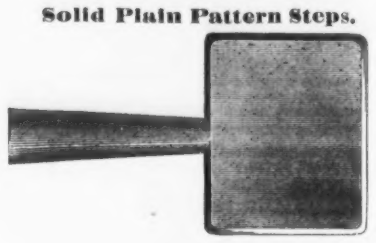


Star Pattern.

Smith's Improved Philadelphia Pattern Slat Irons.



Solid Plain Pattern Steps.



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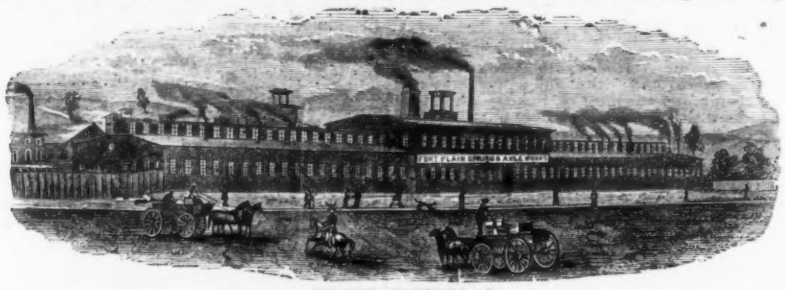

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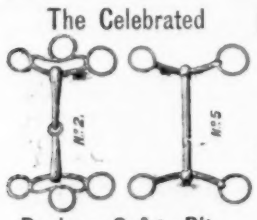

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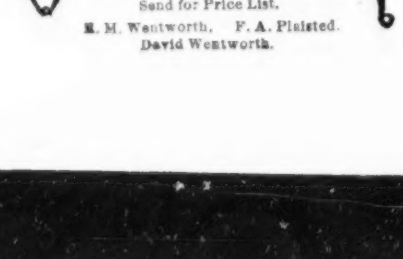

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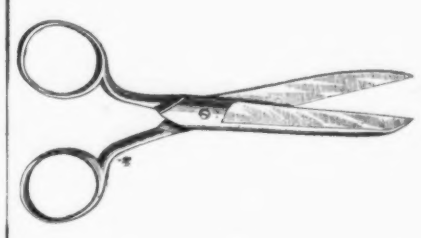

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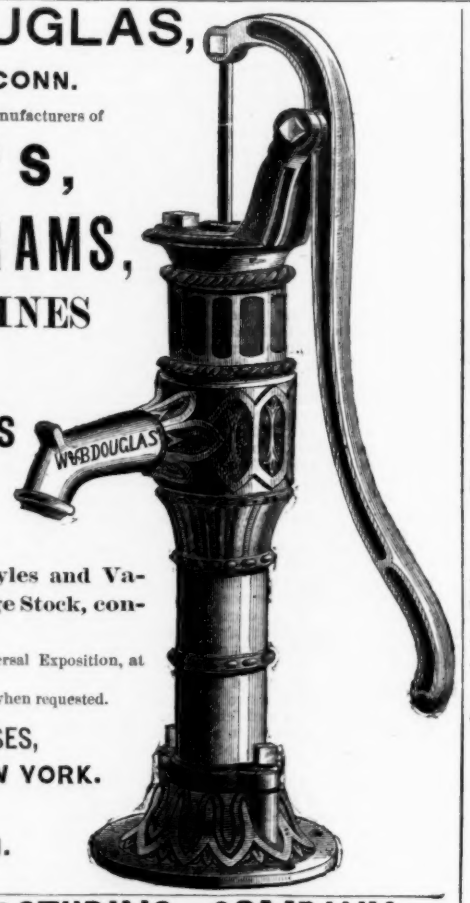

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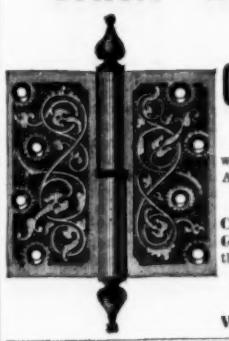

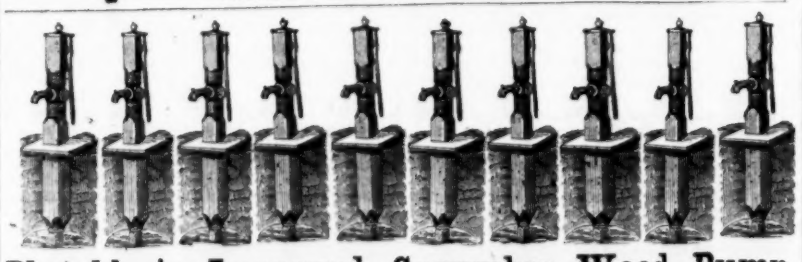

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Greene D. A., 326 & 328 Delancy, N. Y.....30
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Morris Co. Machine and Iron Co., Dover, N. J..30
N. Y. Steam Engine Co., 121 Chambers, N. Y.....30
Chapin Machine Co., New Hartford, Conn.....30
Pratt & Whitney Co., Hartford, Conn.....30
Stiles & Parker Press Co., Middletown, Ct.....31
Watson Andrew, 537 Dickinson, Phila.....31
Machine Screws, *Makers of*
Lyons & Fellows Mfg. Co., Williamsburg, N. Y..15
Machinists' Tools, *Makers of.*
Blaisdell P. & Co., Worcester, Mass.....31
Harrington Edwin, 15th St., & Pa. Ave., Phila....31
Malleable Iron Castings, *Makers of.*
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Pratt & Letchworth, Buffalo, N. Y.....12
Tower Daniel L., Elizabethport, N. J.....4
Meat Cutters, *Makers of.*
Whittemore D. H., Worcester, Mass.....24
Metal Dealers and Brokers.
Belknap Aug., 60 Beekman, N. Y.....2
Crane U. O., 104 John, N. Y.....2
Coddington T. B. & Co., 25 & 27 Cliff, N. Y.....2
Harnickell Max, 85 Beaver, N. Y.....2
Phelps, Dodge & Co., Cliff, N. Y.....2
Pope Thos. J. & Bro., 292 Pearl, N. Y.....2
Quincy J. W., 98 William, N. Y.....2
Thomson A. A. & Co., 213 and 215 Water, N. Y..2
Van Wart & McCoy, 43 Chambers N. Y.....2
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Drown & Corliss, 1123 Girard, Phila.....14
Eliot Boyd, 31 Beach, N. Y.....14
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Ætna Nut Co., Southington, Conn.....14
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Rhode Island Nut Co., 11 Warren, N. Y.....14
Sternbergh J. H., Reading, Pa.....14
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N. Y. Enamel Paint Co., 43 Chambers, N. Y.....25
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McNab & Harlin Mfg. Co., 56 John, N. Y.....26
Nelson, Finkel & Co., 439 E. 10th St., N. Y.....26
Pancoast & Maule, 227 Pear, Phila.....26
Chas. Gregg Mfg. Co., 62 & 64 Gold, N. Y.....26
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Graff William & Co., Pittsburgh, Pa.....26
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Planes, *Manufacturers of.*
Sandusky Tool Co., Sandusky, O.....26
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Plumbago Lubricator.
N. Y. Black Lead Works, 172 Forsyth, N. Y.....
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Printers' and Engravers' Depot.
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Union Mfg. Co., 55 Chambers, N. Y.....12
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Naylor & Co., 99 John, N. Y.....4
Smith Gilead A. & Co., 62 Broadway, N. Y.....4
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Reese, Graff & Co., Pittsburgh.....29
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Singer, Nimick & Co., Pittsburgh.....28
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Shepard Sidney & Co., Buffalo, N. Y.....21
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Joseph Dixon Crucible Co., Jersey City, N. J....32
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Capron Water Wheel Co., Hudson, N. Y.....25
Swain Turbine Co., Lowell, Mass.....25
Whitehill, Smith & Co., Newburg, N. Y.....25
Tubes, Wrought and Galvanized. *Manufacturers of.*
Griffith I. J. & Bros., Philadelphia, Pa.....26
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Backus Vise Co., 78 Beekman, N. Y.....21
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Brooklyn White Lead Co., 89 Maiden L., N. Y...25
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Cornell Lead Co., Buffalo, N. Y.....25
Jewett John & Sons, 182 Front, N. Y.....25
Lewis John T. & Bros., 231 S. Front, Phila., Pa..25
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Gilbert, Bennett & Co., 273 Pearl, N. Y.....2
Howard & Morse, 45 Fulton, N. Y.....2
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Ornamental Wood Co., Bridgeport, Conn.....13
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Coes A. G. & Co., Worcester, Mass.....13
Philadelphia Tool Co., Phila.....20
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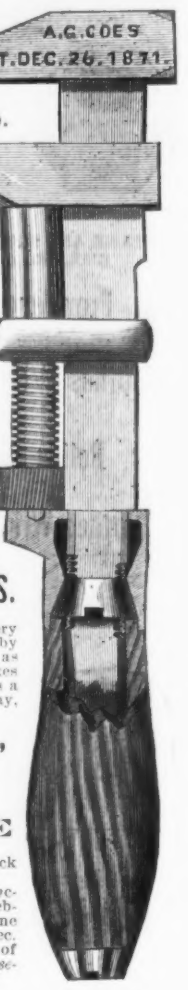

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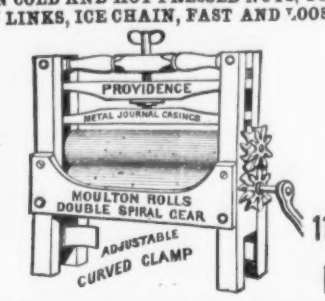

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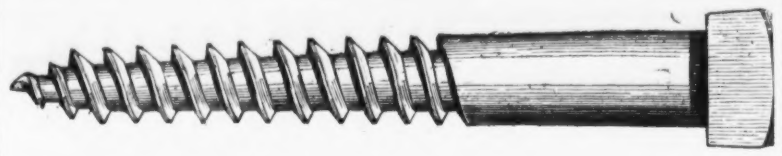

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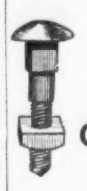

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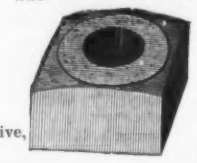

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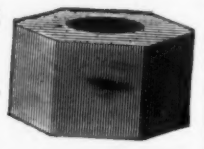

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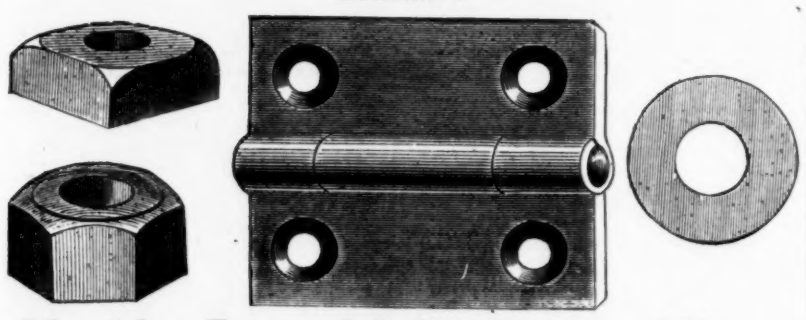

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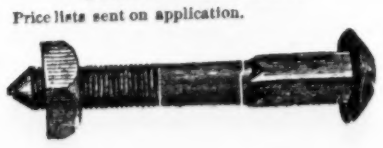

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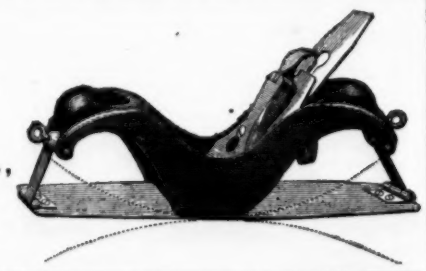

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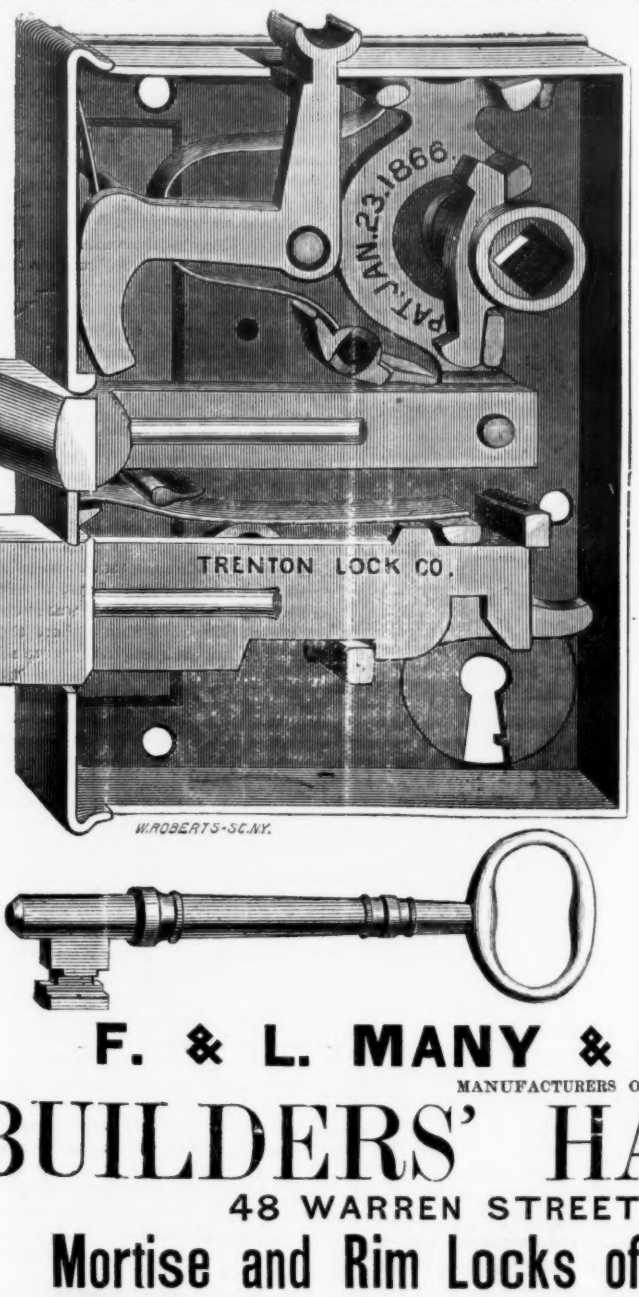

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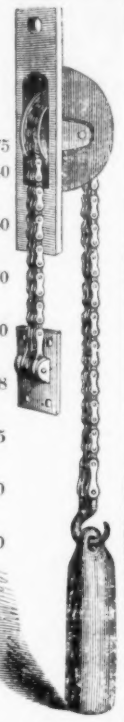

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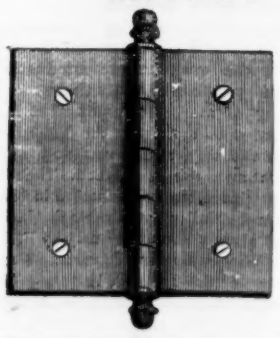

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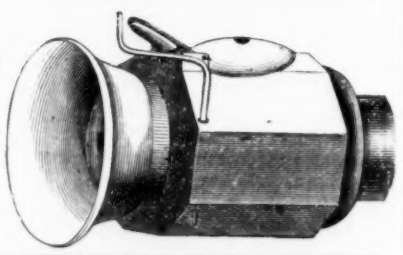

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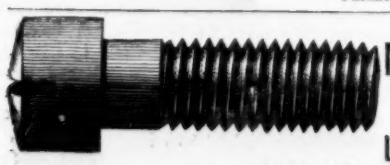

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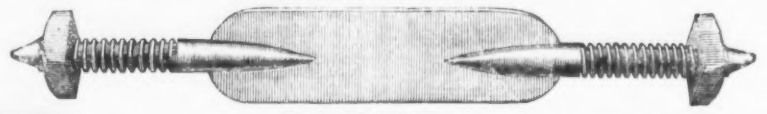

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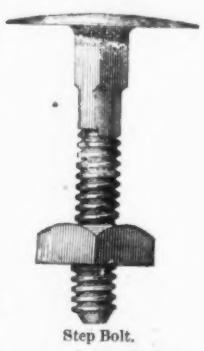

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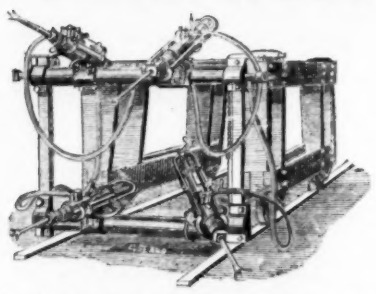

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October, 18, 1871.

The Iron Age.

New York, Thursday, January 30, 1873.

DAVID WILLIAMS . . . Publisher and Proprietor.
JAMES C. BAYLES . . . . Editor.
JOHN S. KING . . . . Business Manager.

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Metallurgical Enterprise in Germany.

It is well known that most of the American ores sent abroad to be smelted have gone to Swansea and Flint, where there are many large smelting works which are devoted almost exclusively to the smelting of imported ores, chiefly American. Of these ores but few have found their way into Germany, partly because of the more intimate commercial relations existing between this country and Great Britain, giving the latter an advantage, and partly because the supply of German ores was sufficient to employ the smelting works of that country to their capacity. Suddenly, however, the mines at Adreasberg, in the Hartz Mountains, began to give out, and as the transfer of the smelting works to some other locality is out of the question, owing to the fact that the workmen and their families are located there in permanent settlements, the managers of the Adreasberg works have turned their attention to the importation of foreign ores. The Royal Saxonian mines at Freiburg were the next to give out suddenly, and later, the managers of the great Mansfield mines, at Eisleben, have reached the conclusion that silver-bearing copper ores would have to be added to their own ore product, if their smelting operations are to be carried on to the best advantage. Under these circumstances, the three mining companies, the Royal Prussian at Clausthal, the Royal Saxonian at Freiburg, and the Mansfield at Eisleben, arranged for common action in the matter of securing larger importation of American ores, committing to the management of the Prussian Company the business part of the undertaking. This arrangement promised great advantage, for the reason that the three companies could take any kind of ores between them: the Clausenthal all the lead ores, either silver-bearing or pure, the Frieburg all ores containing antimony or arsenic, and the Mansfield all copper ores.

This important measure, as we learn from the *Borsenhalle*, immediately stimulated large importations of trans-Atlantic ores, the more so as a scale of values had been agreed upon by means of which the agents of the "Consolidated German Mines" can determine by assay of ores what they can pay for them, thus enabling them to outbid the English agents who had previously monopolized the market, and, in the absence of competition, bought ores far below their real value. But even with these advantages, and favorable consular reports, the German works did not receive an adequate supply of foreign ores, and those they did receive were not as rich as was anticipated. To overcome this difficulty, attention was directed to South America, and it was ascertained that the miners of the west coast, unable to assay their own ores, had long been in the hands of English speculators, who had acquired control of the products of their mines at a price far below their value. That such a condition of affairs was possible was due to ignorance on the part of the miners of the real value of their ores, and it was determined by the consolidated companies to send out a commission of accomplished metallurgical chemists and mining engineers, with instructions to proceed to the principal mining countries in South America and report upon the quantity and value of the ores, the existing commercial relations between those countries and Europe, and the description of ores most desirable for importation. This commission, already on its tour of inspection, will this year visit Columbia, Ecuador, Peru, Bolivia, Chili and La Platte. The result of this movement will be to break up the monopoly which the British smelting works have hitherto enjoyed, and secure for Germany a liberal share of the business of smelting ores mined on this side of the Atlantic. The German capitslists have taken hold of the matter at the right end, in diffusing knowledge which the agents of the English companies have found it most to their interest to keep to themselves; and the result of the competition thus established will be to stimulate mining in countries dependent upon foreign smelting works, by securing better markets for ores, and to effect a considerable increase in the European production of both precious and base metals.

The Great Strike in South Wales.

As will be seen by the interesting letter of our special English correspondent, published in another column of this issue, the British iron year begins with one of the most extensive strikes ever organized in the United Kingdom, whereby some sixty thousand iron workers, colliers and others, in South Wales, have quit work because of a disagreement with the masters concerning the basis for 1873. Our correspondent also furnishes a great deal of interesting information respecting the present condition of the general labor market; but as the iron workers' strike in Wales is a subject in which our readers are likely to feel no little interest, we present such additional facts as may be necessary to a correct understanding of the causes which have brought about this gigantic conflict between labor and capital.

As is generally known, wages in the British iron trades are regulated by the market prices of products. At stated periods masters and men meet in conference to average prices for the three months previous, and determine the basis for the next half year. Under this system wages are supposed to rise and fall with the prices of the products of labor, but the arrangement is one which gives satisfaction to the men only so long as the prices of products are high and advancing. When prices decline, and the masters give notice of a reduction of wages, there is generally a great deal of dissatisfaction, and sometimes, as in the present instance, a strike. But the evils of the system did not stop with its effects upon the temper of the workingmen. To the masters it has brought grave and unlooked-for difficulties. With every advance in iron came an advance in wages, and while the tendency of prices was steadily and rapidly upward, the system worked tolerably well, to all appearances; but the masters were tied up, as it were, and it was impossible for them to take advantage of any turn in the market, other than an upward turn. When, therefore, the climax of high prices was reached, and the market began to decline, the masters were compelled to suspend operations or take orders at prices which, with wages paid on the basis of the highest of mid-summer prices, involved losses heavy in proportion to the amount of business done. Under these circumstances, the masters gave notice that the men must accept lower wages after the first of the year. Early in December last such notice of a reduction of 10 per cent. in wages was given in South Wales, to take effect January 1st. To this the men replied that the market quotations of iron for the last quarter of 1872 did not warrant any such reduction, that the offer of the masters would not be accepted, and that the complaints of the masters were unfounded, as North of England bars were quoted lower than Welsh, while wages in the North were higher than those paid in South Wales. A conference was then held at Cardiff, at which the masters presented statements of the prices at which they had actually sold iron, and which were considerably below those quoted in the trade journals. As proof of good faith, the masters expressed a willingness to show their books to a committee of the men. The men, unprepared for such a statement, but having no reason to doubt its truth, saw that the masters had sufficient reason for making the reduction of which they had given notice, but rather than admit their right to do so, and accept the terms offered, they demanded that "the whole question" be submitted to a board of arbitration. To this the masters were unwilling to accede, claiming—and with truth—that arbitration had notoriously failed in the North of England, and that there was no reason to expect any better results of it in South Wales. The rejection of this popular and always plausible expedient gave the men a sufficient pretext for a strike, and the result is a general suspension throughout South Wales.

The movement thus brought about is of more than local importance, having already led to an advance in iron in anticipation of a lessened production. How long it will last, or what will be the final issue, cannot now be told. As the strike extends to the colliers, and as the control of the unions in this district may be said to be absolute, no partial resumption of work will be possible. Our correspondent expresses the belief that if the masters remain firm the issue must be in their favor, but as the strike is regarded throughout the United Kingdom as a test issue between masters and men, the strikers may therefore expect such help as the outside miners can give them in maintaining the strike, after their own limited resources are exhausted. If the issue is in favor of the masters, it will, doubtless, be possible to readjust wages on a basis satisfactory to both labor and capital; if in favor of the men, the disturbances and difficulties which may be expected to follow will do much to maintain the price of British iron permanently high, and to drive foreign purchasers to this market. The result will be awaited with interest on both sides of the ocean.

Snow and Ice in City Streets.

The question of how streets can be kept reasonably free from accumulations of snow and ice, has become one of much practical importance in this, and, to a less degree, in other large cities: not only because of the discomforts inevitably attendant upon obstructed thoroughfares, but because of the difficulty which such obstructions place in the way of commerce, and the enormously increased cost of moving goods of all kinds from one part of the city to another. From the first snow fall until spring has fairly set it with its warm rains and mild southwesterly winds, truckage is doubly expensive and, at times, almost impossible. Double teams can barely draw half loads; streets become blockaded with vehicles, which are often wedged for hours in inextricable confusion; transportation, which, at other seasons, can be accomplished in one hour, takes half a day; horses are killed or broken down by the hundreds daily; travel in cars and omnibuses is painfully tedious to the passengers, and more than unprofitable to the carriers; in a word, business and travel are almost brought to a standstill, and the resulting losses aggregate far more than the cost of clearing the streets after every snowfall. The question of how they can be cleared most effectively, rapidly and economically is, therefore, as we have said, one of great practical importance, and a means of accomplishing this result ought to be within the possibilities of engineering science.

From our experiences of the present winter we have learned that but little can be accomplished in this direction without the use of special machinery and appliances. The Police Department, with the aid of a regiment of Italian brigands, have, at a cost of many thousands of dollars, mitigated the inconvenience of snow by clearing some streets and breaking up the ice in others to facilitate its thawing. They have also made some effort to enforce the city ordinance requiring that the gutters shall be kept clear to allow drainage free access to the sewers; but in a hundred of the busiest streets of the city the strongest teams are unable to do half their customary service, and merchants are compelled to suffer heavy losses from their inability to receive and deliver goods as at other seasons. We are not disposed to find fault with those in charge of the street cleaning operations, for they seem to have done the best they could under the circumstances, and what they have accomplished counts for something: but it is evident that they have not the means of properly undertaking the work. To cart the snow away and dump it into the rivers is a very slow process, at best, involving great expense and making but little show of results; but even this might be practicable, if the proper kind of vehicles were provided for the purpose, instead of the small dirt and ash carts now employed. We believe, however, that there are better and cheaper ways of accomplishing the same results. By means of small, portable furnaces, properly constructed, it should be possible to melt snow as fast as it could be shoveled into the melting pan or box, and the water run off into the sewers. With such machines, the cost of which would not be great, the snow in a street could be disposed of for less expense of fuel than the cost of carting the whole mass to some distant dumping board. Perhaps other and still better ways might be devised if engineers would give the subject their attention; and with the experiences of the present winter in mind, we think the business community would demand the adoption of any practicable system which might be suggested.

The Massachusetts Railroad Commissioners, in their last annual report, suggest that, in view of the tendency to form special railway rolling stock and express companies, it might be well to make freight transportation a distinct and separate branch of railway management. Under this system, the business of the railroad companies would be limited to the ownership and maintenance of road bed and tracks, and to passenger carriage, and the railroads would be highways upon which anyone who chose might run cars or trains upon payment of tolls. It is the idea of the Massachusetts Commissioners that the carriers should furnish their own locomotives, but for many reasons we should consider this impracticable. The advantage of leaving the matter of freight carriage to private individuals or companies, however, is obvious, and the suggestion, though not a new one, is entitled to intelligent consideration. The railroads, relieved of all expense for the construction and maintenance of rolling stock, other than locomotives and passenger cars, could make as much money out of mileage tolls as now in profits on freights, and the competition among the forwarders would secure to the public the advantage of the lowest rates at which the freights can be profitably moved. There would, also be less temptation to "cut under" in the matter of tolls than in freight rates, and such competition as might exist among forwarders would not affect their net earnings. There is no reason why such a subdivisvion of the freight business should not be to the advantage of the railroad companies and the public, and we incline to the belief that, in the not remote future, the railroad companies will abandon the whole business to freight and express companies.

At this time, when such serious results are apprehended from the general use of steam heating apparatus, it may be interesting to remember that even greater fears were entertained at the time when the use of carburetted hydrogen gas for illuminating purposes was first proposed. The "Elements of Chemistry," published by the very learned John Webster in 1811, contained some remarks on this method of illumination which merit reproduction. We quote as follows: "It is true that gas "may partially be freed from its disagree-"able odor by passing it through lime "water, but the whole process of fabrica-"tion is so tedious and costly that, in spite "of the value of coke and tar, most men of "science share the opinion that illumina-"tion with gas is only to be regarded as a "play. Moreover, the collection of large "quantities of highly inflammable gases "near large cities, and the fact that subter-"ranean pipes convey them into their "midst, is too foolhardy a project to be se-"riously entertained by our city author-"ities."

Scientific and Technical Notes.

Fr. Sieburger, in *Wiederholds' Gewerbeblatter*, writes as follows concerning

SOLDERING IRON AND STEEL.

For large and heavy pieces of iron and steel, copper or brass is used. The surfaces to be united are first filed off, in order that they may be clean. Then they are bound together with steel, and upon the joint a thin strip of sheet copper or brass is laid, or, if necessary, fastened to it with a wire. The part to be soldered is now covered with a paste of clay, free from sand, to the thickness of one inch, the coating being applied to the width of a hand on each side of the piece. It is then laid near a fire, so that the clay may dry slowly. The part to be soldered is then held before the blast, and heated to a white heat, whereby the clay vitrifies. If iron is soldered to iron, the piece must be cooled off in water. In soldering steel to steel, however, the piece is allowed to cool slowly. The semi-vitrified clay is then knocked off, and the surface is cleaned in a proper manner. By following the hints given, it will be found that a durable and clean soldering is obtained. If brass, instead of copper, is used, it is not necessary to heat so strongly; the former recommends itself, therefore, for steel. Articles of iron and steel of medium size are best united with hard or soft brass solder. In both cases the seams are cleanly filed and spread over with the solder and borax, when the soldering seam is heated. Hard brass solder is prepared by melting in a crucible eight parts of brass, and adding one part of previously heated zinc. The crucible is then covered and exposed to a glowing heat for a few minutes, then emptied into a pail with cold water, the water being strongly agitated with a broom. Thus the metal is obtained in small grains or granules. Soft brass solder is obtained by melting together six parts of brass, one of zinc, and one of tin. The granulation is carried out as indicated above. Small articles are best soldered with hard silver solder or soft solder. The former is obtained by alloying equal parts of fine silver and soft brass. In fusing, the mass is covered with borax, and, when cold, the metal is beaten out to a thin sheet, of which a sufficiently large and previously annealed piece is placed with borax upon the seams to be united and heated. Soft silver solder differs from hard silver solder only in that the former contains one sixteenth of tin, which is added to it during fusion. Very fine articles of iron and steel are soldered with gold, viz., either with pure gold or hard gold solder. The latter can be obtained by fusion of one part gold, two parts silver, and three copper. Fine steel wire can also be soldered with tin, but the work is not very durable. Hard and soft brass solder are used for uniting copper and brass to iron and steel, silver solder for silver, hard gold solder for gold.

Dr. Elsner, the well-known director of the imperial porcelain manufactory in Berlin, in his *Chemisch-Technische Mittheilungen*, gives some interesting facts concerning the

VOLATILITY OF IRON,

from which we translate the following: Iron passes off in vapor at a temperature of about 5400° F. A small piece of wrought iron was placed in a well-burned unglazed biscuit-porcelain crucible, several inches in hight. The crucible was covered, the lid cemented on, and exposed to the white heat of the furnace. When withdrawn, it was found that the inner surface of the lid was covered with a very thin iron-gray coating, which, on examination, was found to be pure iron.

Kirchmann recommends

SODIUM AMALGUM FOR GILDING IRON,

and for providing the same with figures in gold. By merely rubbing this amalgum over the surface, the metal, even when oxidized, is at once provided with a layer of mercury. Chloride of gold in a concentrated solution is then spread over the amalgamated surface, the mercury being driven off before a lamp or in the furnace. The gilding can be well polished. With silver and platina salts corresponding results are obtained.

THE INVESTIGATIONS ON THE ACTION OF SRTEET GAS ON TREES,

which have been conducted for two years in the botanical garden and in the nursery in Berlin, are concluded. The result may be condensed in the sentence that even as small an amount as one cubic yard of gas, when divided on 23·3 cubic yards of ground, was sufficient to kill the small roots within a short time, and that this occurs the quicker, the more solid and firm the ground. Some species of trees are sooner affected than others. It has furthermore been established that in winter the roots are less affected than during the period of growth, and even a very small but continually acting quantity of gas surely kills them. Sickly trees will only get strong if the action of the gas is short and only embraces the time of the formation of fibrilles, but not the whole yearly growth-period. According to the experience of officials of gas works, leaky spots with an efflux of 0·25 cubic yards daily are neither perceptible by the smell nor otherwise, but since a good many of such insignificant leaky spots exist, not only such trees as are in immediate proximity are in constant danger, but also the more distant ones. Experience proves that the escaped gas travels in the lower loose layers often to a distance of thirty feet and more, before it reaches the surface. By these experiments it has therefore been established that trees grown over or near gas pipes are exposed to poisoning and destruction, and that the only way to save them is to invent a thorough air-tight joint, with socket and nozzle, or to discover means by which the gas can escape without permeating the ground.

In one of our German contemporaries we find the following

HISTORICAL NOTES ON PUDDLE STEEL.

After puddling—especially slag puddling—had found an application in the manufacture of wrought iron, the question presented itself whether it was possible to apply this process in the making of steel. It required at first many experiences to surmount the difficulties that stood in the way, and it was only after many trials that success was attained. The first successful experiments were conducted in 1835, by Schlegel and Muller, at Frantschach, in Corinthia, and almost simultaneously by F. H. Schmidt, in Weyerhammer, Bavaria. There followed others in Siegen (1838), Hagen (1840), Saint Chamond, in France (1845), in Magdesprung, in the Hartz Mountains (1846, with gaseous fuel), in Eibiswald (1849), and elsewhere. Yet all these trials led to no extensive use of the process. Finally (1850), Messrs. Lohage and Bremme succeeded in producing good steel continually in the works of Lehrkind, Falkenroth & Co., near Haspe, in Westphalia. Thence its manufacture was introduced into Germany, Belgium, England and France.

In a review on the progress of chemical technology in 1872, Professor Charles A. Joy remarks that

THE RECOVERY OF TIN

from clippings appears to be nearer a practical solution than it was a year ago. There would, he says, appear to be no doubt that the methods proposed are perfectly practicable, and that the chief difficulty is only to secure the faith of tin workers that it is worth while to save their scraps. The methods proposed are those of Mr. Thomas F. Wells and Prof. Charles A. Seely, both of this city, and we understand that the former gentleman has concluded to erect works with a capacity for treating 15 tons per day.

The "*Techniker*" gives the following receipt for

HARDENING SAWS.

The blades are first heated in elongated furnaces, and then immersed in the hardening mixture, which is contained in long vats. Of these vats there are several placed side by side, to be used in turn, so that the mixture has time to cool off. When this is the case, the blade is wiped off with leather and placed on a coke-fire, in which the fatty coating inflames. The burning replaces the annealing in the ordinary hardening process, and is to impart to the blade the required elasticity. For thin blades, a mixture is recommended consisting of four quarts train-oil, two pounds tallow and a quarter of a pound wax, boiled together. If this mass is to be applied for the hardening of stronger blades, one pound fine resin is added to it. After some months' use it becomes unfit and must then be replaced by a fresh composition. By sharpening and polishing after hardening, the blades partially lose in elasticity; but by hammering and heating over a coke-fire until they are straw-yellow, their former elasticity will return, and by dipping them into weak diluted muriatic acid they become again bright.

EXPLOSIVE METAL.

If into a solution of antimony in muriatic acid a copper plate and a platina plate are immersed, and if the former is connected with the negative, the latter with the positive pole of an electric battery, antimony is precipitated in form of a mirror upon the copper. By bending the copper sheet, the brittle layer of antimony gets loose and falls off. It has now the property to explode when rubbed or hit with a hammer, producing at the same time light and heat. The cause of this strange phenomenon is attributed to the rapid transition of the tenacious, homogeneous and amorphous form into a crystalline one.

IMPROVEMENT IN THE MANUFACTURE OF WIRE.

By repeatedly annealing wire an oxidation can scarcely be prevented. In order to separate the scale, it has been necessary to dip the wire into acid, but it loses thereby in strength, especially if thin. This may be prevented by conducting the annealing in a bath of fusible salts, such as chloride of calcium, hydrate of soda, and soluble glass.

ENAMEL FOR KITCHEN VESSELS OF COPPER.

Copper, as is well known, oxidizes in the air and forms verdigris, especially if it has been brought into contact with vegetable acids. Its surface may be provided with a permanent enamel, as follows: Mix twelve parts white fluor spar, twelve parts unburned gypsum, and one of borax, all in the form of powders. Fuse these ingredients in a crucible, and when molten, pour out the mass, and, after cooling, put it with a brush into a pasty consistency, with which coat the copper vessel. It is now exposed to a medium heat, so that it may dry quickly, after which the vessel is heated in a proper furnace until the mass begins to fuse. When cool, it will present itself as a white, opaque enamel, which does not easily crack, and is not attacked by acids.

It may be interesting to know that the idea of

TELEGRAPHIC WEATHER REPORTS,

which are now regarded as so important to commerce, originated with the celebrated French astronomer, Le Verrier, who exhibited the first meteorological chart for France on the 26th of February, 1855, to the French Academy. From this specimen originated the telegraphic reports laid down in the *Bulletin International de l' Observatoire de Paris*, which indicate for every day the condition of the atmosphere for the whole of Europe. Since 1867 these charts have been accompanied by a sheet indicating the lines of equal barometric pressure for every day. The meteorological observations from 21 French and 42 foreign stations are sent daily, in winter at 8, in summer at 7 a. m., to Paris, whence they are forwarded immediately to fifteen different places, viz.: to Florence and Rome for the Italian coast; to Vienna for the eastern coast of the Adriatic; to Brunel and Utrecht for the North Sea; and to St. Petersburg, Stockholm, Lisbon, Madrid and Berne. Formerly the Parisian dispatches contained, as appendix, the so-called "probabilities"—prophecies on the most probable state of the weather for the following day, but since October 27, 1865, they have been discontinued—probably on account of a difference of opinion between Le Verrier and Marie Daoy.

The idea of applying the

ELECTRIC SPARK FOR BLASTING

belongs to an American, Mr. Shaw, and was made in 1830. He used an ordinary electric machine. The well-known Professor Hare, of Philadelphia, first used the current of a galvanic battery, and blasted twelve mines at a distance of 130 paces. His system, however, was abandoned, not being sufficiently practical. In 1842 the Scotchman Roberts took up the matter again, and brought it to the degree of perfection now so much admired.

M. Kruka, the inventor of the breech-loader which has been adopted by the War Department at St. Petersburg for the Russian army, has just published a pamphlet at Prague, in which he describes a new invention of his called the "Kulomet," or hand mitrailleur. It is of simple construction, and may be used by the soldier on any ground, like a rifle. A soldier armed with it can, under all circumstances, fire thrice as rapidly as with the zundnadelgewehr; in battle it will fire twenty-four shots a minute. Any rifle may be converted into a Kulomet, and any cartridges may be used with it.

M. Lionel Weber has invented a new battery, composed of a porous diaphragm filled with plumbago. This vessel is placed in a glass or porcelain vase containing a saturated solution of ammoniacal chlorhydrate. Into the plumbago is introduced a plate of charcoal, which constitutes the positive pole; and into the solution which surrounds the diaphragm is plunged a plate of amalgamated zinc, forming the negative pole.

The list of mills and forges at work in Great Britain in 1871 includes 267 works, and shows 6841 puddling furnaces and 866 rolling mills. There were 19 works in Great Britain having Bessemer converters in 1871; the number of converters at these work varied from 2 to 18, and the capacity of the converters from 3 to 10 tons. It is estimated that there were 2,393,293 boxes of tin, terne, and black plates made in the United Kingdom in 1871.

Twenty-five bills authorizing the construction of tramways throughout Great Britain are to be submitted to the British Parliament at its next session

The portions of the great steel works at Essen, Germany, liable to suffer from fire, were recently insured for the immense sum of $4,670,000.

Special Notices.

Hardware Salesman Wanted.

A LARGE MANUFACTURING AND JOBBING Hardware House, in New York, wants to engage four well posted, *first-class Hardware Salesmen*, to travel and sell goods in the four following sections of the country, viz: Wisconsin and Minnesota, Southern and Western Indiana and Southern Illinois, Missouri and Western Iowa, Canada and the Provinces. Persons without experience or trade in either of the above four parts need not apply; as parties who are engaged will risk their time and traveling expenses. Address, with reference, I. G., Box 2127, N. Y. P. O.

File and Steel Trade.

The advertiser, who has had a long experience with a prominent firm, who, since the fire, have decided to discontinue their Retail Business, desires to make arrangements to represent a good house in Boston, and work the New England States, &c. Address *AGENT, Box 1628 P. O., Boston.*

HORSE SHOE IRON

Of superior quality,

MANUFACTURED BY

NEW HAVEN

Rolling Mill Co.

R. T. HAZELL, AUCTIONEER.

By R. T. Hazell & Co.,

Store No. 118 Chambers Street.

Our REGULAR SALES of HARDWARE, CUTLERY, FANCY GOODS, &c., will be held on TUESDAYS and FRIDAYS throughout the season.

CASH ADVANCES made on CONSIGNMENTS without additional charge.

ALWAYSCOOL Stove Lid Lifter. Ventilated Handle Manufactured by G. B. WALBRIDGE, 55 Chambers St. N. Y.

Trade Register
OF
HARDWARE
And Kindred Interests.
1873.

GUARANTEED CIRCULATION,

Five Thousand Copies,

Amongst all good standing Hardware Dealers throughout the United States, *payment for advertisements being required only upon proof of fulfillment of our Contract.*

Will be published about February.

All Parties having anything kindred to Hardware should advertise in it.

Circulars upon application.

The Merchants & Man'frs Agency,

4 Warren St., N. Y., Publishers.

CAUTION.

The public are warned against paying money in advance for the insertion of advertisements, or other matter in works published by us.

The Merchants and Manufacturers Agency,
4 Warren Street, N. Y.

To Stove Manufacturers

A reorganized Stove Company, with new capital and new stockholders, wish to secure the services of a reliable, practical man, to take charge of the business. It is desirable that he should, by investing three to five thousand dollars, be made directly interested in the success of the business. To such a man liberal inducements will be offered. Address *F. W. COLBY, Defiance, Ohio.*

Proposals For Iron.

OFFICE OF THE N. J. & C. R. R. Co., NATCHEZ, Miss., Jan. 15, 1873.

Proposals will be received by the undersigned until the FIFTEENTH DAY OF FEBRUARY NEXT. for 200 tons of 35 pound iron rails, of the fish-bar pattern, to be paid for in U. S. currency. Also for 200 tons or more of 35 pound iron rails, of the fish-bar pattern, to be paid for in Adams County Bonds, (first and second coupon off.) (The said bonds bear an interest of 7 per cent. per annum, payable annually, the principal being payable in 15 years from date, (the bonds are dated July 1st, 1871,) and principal and interest payable at the Bank of America, N. Y.) Or proposals will be received for 400 tons of said iron, one-half to be paid in U. S. Currency, and the balance in said Adams County Bonds. The proposals to state at what time the said iron will be delivered, and the price of same, f. o. b. vessel to New Orleans; or, if the iron is already in New Orleans, the price of the same there. Proposals will also be received for fish-plates, bolts and spikes sufficient to lay the iron bid for. The bid to state the size of the bolts and plates (the spikes to be 5⅛x½ inches) and the quantities of each and price. Bids for any other quantities than above named will be entertained. The undersigned reserving the right to reject any or all bids.

W. T. MARTIN, President N. J. & C. R. R.

Miles of Railroad in Operation in the Several States and Territories on the 31st of December, from 1850 to 1872, inclusive.

STATES.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.
1. Maine	245	293	323	334	360	415	429	451	468	472	472	471	505	505	505	521	521	521	560	680	810	873	922
2. N. Hampshire	467	537	568	644	644	657	657	657	657	661	661	661	661	661	661	667	667	667	667	702	735	797	931
3. Vermont	290	413	471	506	512	529	529	529	529	546	554	562	562	587	587	587	587	587	605	622	622	711	764
4. Massachusetts	1,035	1,038	1,047	1,105	1,144	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,285	1,285	1,285	1,297	1,331	1,401	1,425	1,486	1,479	1,642	1,643
5. Rhode Island	68	68	68	68	94	108	108	108	108	108	108	108	108	125	125	125	125	125	125	125	141	139	139
6. Connecticut	402	451	496	496	496	496	590	590	590	601	601	630	630	630	630	637	637	637	637	692	729	822	907
N. E. States	2,507	2,800	2,973	3,153	3,250	3,469	3,577	3,599	3,616	3,652	3,660	3,696	3,751	3,793	3,793	3,834	3,868	3,938	4,019	4,301	4,516	4,984	5,306
7. New York	1,361	1,623	2,031	2,387	2,534	2,583	2,629	2,661	2,661	2,679	2,682	2,700	2,728	2,792	2,821	3,002	3,178	3,245	3,329	3,658	3,892	4,253	4,901
8. New Jersey	206	303	318	347	375	466	485	507	516	536	560	587	633	756	864	864	879	942	973	1,011	1,092	1,049	1,379
9. Pennsylvania	1,249	1,297	1,372	1,404	1,537	1,800	1,925	2,081	2,340	2,442	2,598	2,802	3,006	3,171	3,360	3,728	4,091	4,311	4,398	4,898	5,056	5,521	5,787
10. Delaware	39	39	39	39	44	56	79	115	127	127	127	127	127	127	127	134	147	165	165	210	210	288	231
11. Md. & D. of C.	259	274	327	327	327	327	327	352	352	277	386	386	408	408	408	446	484	527	535	588	686	813	861
12. West Virginia	97	159	241	241	241	241	241	352	352	352	352	361	361	361	361	365	365	365	365	387	387	478	512
Middle States	3,202	3,695	4,328	4,745	5,058	5,473	5,686	6,068	6,348	6,413	6,705	6,963	7,263	7,615	7,941	8,539	9,144	9,555	9,765	10,752	11,323	12,322	13,671
13. Ohio	575	588	756	1,200	1,317	1,486	1,807	1,895	2,651	2,812	2,946	2,947	3,101	3,311	3,311	3,331	3,372	3,398	3,398	3,448	3,638	3,860	3,962
14. Michigan	342	379	431	431	444	474	501	602	642	737	779	810	853	898	898	941	1,039	1,163	1,199	1,325	1,739	2,038	2,997
15. Indiana	228	558	756	1,209	1,317	1,406	1,807	1,895	1,995	2,014	2,163	2,175	2,175	2,175	2,195	2,217	2,217	2,506	2,600	2,853	3,278	3,709	3,829
16. Illinois	111	271	412	759	788	887	2,235	2,502	2,730	2,781	2,790	2,917	2,998	3,156	3,156	3,157	3,191	3,224	3,440	4,031	5,423	6,304	6,901
17. Wisconsin	20	50	71	71	97	187	276	630	647	826	905	933	961	990	1,010	1,010	1,036	1,036	1,235	1,512	1,512	1,653	2,219
18. Minnesota	....	....	....	....	....	....	....	....	....	....	....	....	....	31	157	213	298	482	572	705	972	1,553	1,855
19. Iowa	....	....	....	....	....	68	254	344	379	533	655	701	731	792	805	891	998	1,283	1,523	2,095	2,551	3,162	3,679
20. Kansas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	40	40	240	494	648	931	1,501	1,703	2,117
21. Nebraska, etc.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	122	305	555	920	1,058	1,458	906	1,192
22. Missouri	....	....	....	38	38	139	144	318	547	724	817	838	838	868	925	925	925	1,085	1,354	1,712	2,140	2,864	2,977
23. Colorado	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	381	442	557
24. Dakota Ter.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	61	323
25. Wyoming	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	454	454
Western States	1,276	1,846	2,426	3,708	4,001	4,647	7,024	8,186	9,591	10,427	11,055	11,321	11,657	12,221	12,497	12,847	13,621	15,226	16,889	19,760	24,593	29,309	33,062
26. Virginia	384	520	632	752	839	912	951	1,137	1,168	1,301	1,379	1,379	1,379	1,379	1,379	1,401	1,442	1,464	1,464	1,483	1,483	1,478	1.5
27. N. Carolina	283	283	351	420	572	582	694	733	849	937	937	937	937	984	984	984	1,042	1,042	1,097	1,130	1,178	1,261	1,376
28. S. Carolina	289	378	598	652	669	759	848	879	905	973	973	973	973	973	973	1,007	1,007	1,007	1,007	1,076	1,101	1,139	1,210	1,321
29. Georgia	643	795	910	962	983	1,020	1,165	1,242	1,297	1,371	1,420	1,420	1,420	1,420	1,420	1,420	1,502	1,548	1,575	1,652	1,933	2,157	2,217
30. Florida	21	21	21	21	21	21	56	128	198	290	402	402	402	402	402	416	416	437	437	446	448	467	467
31. Alabama	183	183	214	304	304	334	454	532	532	628	743	743	805	805	805	805	839	851	953	1,081	1,396	1,698	1,839
32. Mississippi	75	75	96	96	222	278	413	483	604	698	862	862	862	862	862	898	898	898	898	990	990	984	989
33. Louisiana	80	80	80	89	198	203	249	261	281	295	335	335	335	335	335	335	335	335	335	375	479	522	568
34. Texas	....	....	....	....	32	40	71	157	205	284	307	392	451	451	451	465	471	513	513	583	711	797	1,301
35. Kentucky	78	94	94	167	242	242	268	305	458	534	534	549	567	567	567	567	581	635	813	852	972	1,018	1,173
36. Tennessee	....	112	185	291	329	466	541	770	888	963	1,253	1,253	1,253	1,253	1,296	1,296	1,296	1,358	1,436	1,451	1,490	1,521	1,582
37. Arkansas	....	....	....	....	....	....	....	....	....	....	38	38	38	38	38	38	38	38	86	128	586	490	679
38. Indian Ter.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	148	313
Southern States	2,036	2,541	3,181	3,754	4,411	4,857	5,710	6,627	7,385	8,274	9,183	9,283	9,422	9,469	9,512	9,632	9,867	10,126	10,683	11,272	12,505	13,751	15,281
39. California	....	....	....	....	....	8	23	23	23	23	23	23	23	53	147	214	308	382	468	702	997	1,111	1,522
40. Oregon	....	....	....	....	....	....	....	....	....	....	....	....	4	19	19	19	19	19	19	60	159	199	298
41. Nevada	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	30	402	402	593	567	602
42. Utah Ter.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	312	381
43. Wash'gt'n Ter	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	55
Pacific States	....	....	....	....	....	8	23	23	23	23	23	23	27	72	166	233	327	431	889	1,164	1,749	2,189	2,858
Total in the U. S.	9,020	10,882	12,908	15,360	16,720	18,454	22,020	24,503	26,963	28,789	30,626	31,286	32,120	33,170	33,909	35,085	36,827	39,276	42,245	47,249	54,686	62,555	70,178

Net Cash Average Price Per Ton of Pig Iron, Mixed Numbers, at Middlesboro-on-Tees, from January, 1845, to December, 1872, Inclusive.

	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	65 0	80 6	74 0	48 6	46 0	49 10	43 6	36 6	66 6	76 2	66 10	76 3	73 6	54 7
February	74 0	77 6	73 6	49 6	51 0	47 5	43 0	36 3	54 10	78 0	61 2	69 10	73 9	56 3
March	105 0	71 0	72 0	44 6	49 0	44 4	41 8	36 5	52 11	77 8	57 10	68 4	75 5	57 1
April	107 6	65 0	71 0	42 0	47 6	43 0	41 4	36 0	52 8	79 5	60 0	72 11	75 0	53 3
May	88 0	69 6	66 0	44 0	43 6	45 0	40 1	38 1	50 10	85 2	67 6	76 2	76 9	54 3
June	65 0	68 0	65 0	42 6	44 0	45 6	39 5	40 0	52 9	88 8	75 8	75 3	77 4	52 6
July	65 0	71 0	69 0	45 0	44 6	44 6	38 9	44 6	55 1	84 11	73 10	72 9	73 4	53 0
August	67 6	74 0	68 0	45 3	45 0	43 6	38 1	45 0	64 1	83 5	78 0	73 0	70 0	55 1
September	82 0	74 0	67 0	45 0	42 9	42 6	39 0	48 0	63 6	82 7	81 0	71 6	67 8	54 4
October	90 0	70 6	60 0	42 6	42 3	42 6	39 3	56 6	66 6	81 7	77 0	68 5	62 3	54 4
November	77 6	69 6	51 6	41 6	44 4	43 0	39 3	58 0	78 2	71 9	76 6	71 3	53 8	53 8
December	76 0	72 6	47 0	42 3	46 8	43 6	38 0	69 9	78 10	66 10	76 10	72 6	51 3	54 6
Aver. of years	80 3	67 3	65 4	44 4	45 6	44 7	40 1	45 5	61 5	79 9	71 0	72 4	69 2	54 5
Aver. price of bar iron in £	9 10/	9 15/	8 5/	5 0/	5 17/6	5 9/	5 7/6	10 10/	9 7/6	9 15/	8 15/	8 17/3	8 16/6	7 10/

	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	53 6	57 7	49 1	48 7	54 6	64 10	49 8	66 4	54 4	52 2	55 1	56 4	51 6	74 7
February	51 11	60 0	48 9	49 1	54 0	60 7	50 4	71 1	53 9	52 5	55 1	54 8	52 3	75 8
March	52 0	58 0	47 6	49 6	52 5	57 9	50 9	77 2	52 6	52 10	53 2	54 3	53 7	85 8
April	51 3	53 11	48 1	52 9	50 9	59 2	53 9	78 2	51 11	52 3	52 9	57 2	55 1	92 0
May	48 4	51 9	48 0	53 5	50 8	59 2	54 0	57 0	53 3	52 2	51 4	57 5	56 8	95 1
June	48 0	50 3	49 6	52 7	51 5	57 8	54 9	53 10	53 6	52 1	50 9	60 3	57 0	99 6
July	51 8	52 2	50 10	51 5	53 10	58 6	54 7	52 10	52 11	52 8	50 11	55 1	59 0	121 9
August	52 10	51 11	51 1	54 6	54 0	58 2	54 9	52 4	53 5	52 9	52 2	51 3	62 0	126 0
September	51 9	51 3	51 0	56 3	57 8	58 3	57 5	54 6	54 3	53 8	53 0	51 7	60 7	129 2
October	51 8	52 0	49 8	56 1	61 3	51 10	57 9	54 2	54 11	53 0	53 1	51 4	61 8	120 8
November	52 4	52 5	49 3	56 2	62 6	51 0	58 0	53 5	54 1	53 5	54 6	51 1	67 9	97 7
December	56 5	51 0	48 4	54 5	65 7	50 2	61 9	54 4	52 8	53 7	57 0	51 3	70 0	104 0
Aver. of years	51 10	53 6	49 3	52 10	55 9	57 3	54 9	60 6	53 6	52 9	53 3	54 4	58 11	101 10
Aver. price of bar iron in £	7 7/6	7 7/6	7 0/	6 12/6	7 7/6	8 12/	7 15/	7 15/	7 2/6	6 15/	6 15/	7 15/	8 0/	12/10

Price of pig iron in 1810, £9. 5/; 1815, £7. 15/; 1820; £7; 1825, £11; 1830, £5; 1835, £4. 15/; 1840, £3. 15/. Production in 1788, 1500 tons; 1805, 9000 tons; 1820, 20,000 tons; 1825, 29,000 tons; 1839, 197,000 tons.

Miles of Railroad in Operation in the United States, and Annual Increase, from 1830 to 1849, inclusive.

Year.	Miles in operation.	Annual Increase of Mileage.	Year.	Miles in operation.	Annual Increase of Mileage.
1830	23	....	1840	2,818	515
1831	95	72	1841	3,535	717
1832	229	134	1842	4,026	491
1833	380	151	1843	4,185	159
1834	633	253	1844	4,377	192
1835	1,098	265	1845	4,633	256
1836	1,273	175	1846	4,939	297
1837	1,497	224	1847	5,599	669
1838	1,913	416	1848	5,996	397
1839	2,302	389	1849	7,365	1,369

Production, Shipments, Home Consumption, and Stocks of Scotch Pig Iron for a Series of Years.

Furnaces in Blast on	Make. Tons.	Shipments & Home Consumption. Tons.	Stock. Tons.
Dec. 31, 1844	.....	.....	160,000
" 1845	88 475,000	390,000	245,000
" 1846	98 570,000	666,000	149,000
" 1847	100 510,000	579,000	80,000
" 1848	103 480,000	562,000	98,000
" 1849	112 690,000	578,000	210,000
" 1850	105 595,000	535,000	270,000
" 1851	112 760,000	680,000	350,000
" 1852	113 775,000	675,000	450,000
" 1853	114 710,000	950,000	210,000
" 1854	117 770,000	860,000	120,000
" 1855	121 825,000	847,000	98,000
" 1856	128 832,000	842,000	88,000
" 1857	123 915,000	843,000	160,000
" 1858	132 945,000	810,000	295,000
" 1859	125 950,000	915,000	330,000
" 1860	131 1,000,000	903,000	427,000
" 1861	121 1,035,000	927,000	535,000
" 1862	125 1,080,000	970,000	645,000
" 1863	134 1,160,000	1,105,000	756,000
" 1864	134 1,160,000	1,156,000	760,000
" 1865	136 1,164,000	1,272,000	652,000
" 1866	98 994,000	1,136,000	510,000
" 1867	112 1,031,000	1,068,000	473,000
" 1868	121 1,068,000	973,000	568,000
" 1869	129 1,150,000	1,098,000	620,000
" 1870	136 1,306,000	1,161,000	665,000
" 1871	126 1,160,000	1,335,000	490,000
" 1872	115 1,090,000	1,386,000	194,000

For Sale, &c.

Public Sale of Valuable Real Estate

Will be sold at PUBLIC SALE, on *Tuesday, February 25, 1873*, on the premises, the following Valuable Real Estate, viz:

A Valuable Furnace Property,

To settle up an estate, on the Union Canal, at Union Deposit, Dauphin County, Pa., one mile from Swatara Station, Lebanon Valley Railroad, consisting of a No. 1 **Stone Stack**, now in blast, with ample power of **Engine** and **Boilers** in a good condition; two **Hot Blast Ovens**; a large Foundry (107x50 feet); **Brick Mansion House**, ten **Tenant Houses**, Blacksmith Shop, Stock House, ample Stabling, and all the necessary arrangements for successfully carrying on the business. ☞ The above **Furnace**, with the convenient **Ores** of the neighborhood, is capable of averaging 100 tons of Pig Iron per week. ☞ The **Stack, Engine, &c.**, is suitable for an enlargement of the Furnace capacity with but little extra expense.

☞ Sale to commence at 10 o'clock, a. m. and close at 2 p. m., when conditions will be made known by

ANDREW LIGHT,
FELIX LANDIS,
Assignees of R. A. Middleton.

N. B.—The creditors of R. A. Middleton are requested to attend the sale.

UNION DEPOSIT, Dauphin Co., Jan 30, 1873.

Rolling Mill Machinery For Sale

One train, 3 high, finishing rolls, with steam engine 75 H. P.; and balance wheel, 20,000 lbs.—complete and in good order—by

Fearing, Rodman & Swift,
23 & 25 Commercial Street, Boston.

BOSTON, Nov., 20, 1872.

Beam Engine For Sale,

Cylinder, 28⅛ inches diameter, 6 feet stroke, high pressure, in good running order at the American Screw Co.'s New England Mill, Providence, R. I. It has been replaced by a larger engine, built by the Foundry & Machine Co., of Taunton.

Apply to B. R. Thurston, Superintendent at the New England Mill, Providence, or of T. F. Gates Agent of the Foundry & Machine Co., Taunton, Mass.

FOR SALE.

The Napanoch Blast Furnace, Ulster Co., N. Y. Splendid water power. Charcoal and Anthracite Coal in abundance, cheap. Apply to **H. Barage,** 34 Tompkins Place, BROOKLYN, N. Y.

HARDWARE STORE FOR SALE,
at Independence, Kas.

The oldest established Hardware House in the city, doing a fine and profitable business, and in one of the most thriving towns in Kansas. Satisfactory reasons given for selling. Address office of *The Iron Age*, 80 Beekman Street, N. Y., for any particulars.

For Sale, &c.

Valuable Iron Furnace and Ore Bank

In Amherst and Rockbridge Counties, Va., on the James River and Kanawha Canal,

For Lease at Auction.

Pursuant to a decree of the County Court of Rockbridge County, November 15th, 1872, in the cause of Sam'l F. Jordan's Executor, vs. Sam'l F. Jordan's heirs, we will, as commissioners, offer for rent at public auction, at the Court House, in Lexington, Va.,

On Monday, 3d day of February, 1873,

at 12 o'clock, M. of that day, for the term of three years from that date, that valuable

CHARCOAL IRON FURNACE,

now in successful operation in Amherst Co., Va., of the estate of Sam'l F. Jordan, deceased, together with an excellent Iron Ore Bank, in Rockbridge Co., Va., in connection therewith by the James River and Kanawha Canal.

The property has been in operation for the last ten years, and has yielded great profits to its proprietors. It is rented now for the purpose only of facilitating the settlement of Mr. Jordan's estate.

This is one of the most valuable and profitable properties in Virginia. The furnace, immediately upon the bank of the James River and Kanawha Canal, is abundantly provided with timber for fuel immediately surrounding it, and has a never failing water-power of the entire James River. Its capacity is 8 tons of iron per day.

It is 22 miles above Lynchburgh, and 112 from Richmond, by the canal.

The **Ore Bank** is also located upon the canal, 15 miles above the furnace. The ore is now raised about 90 feet, the opening is about a mile from the canal, to which a good wagon road leads down grade all the way.

The ore is of an excellent quality—50 per cent.—and is, perhaps, the finest in Virginia, being in great repute in Richmond, Baltimore and Philadelphia for the manufacture of car wheels.

Parties desiring to examine will best reach the property from Lynchburg Mr. Wm. Jordan, the present manager, living at the **Furnace**, will take pleasure in showing the property.

Upon the next day, after the renting of the Amherst Furnace, will be sold all the stock and plant upon the premises, used and necessary for operating the same, consisting of mules, horses, wagons, carts, tools, canal boats, &c.

TERMS OF SALE.

For personal property made known on day of sale. For the real property, cash sufficient to pay costs of suit and renting, the balance in 6 equal

Trade Report.

OFFICE OF THE IRON AGE,
WEDNESDAY EVENING, Jan. 29, 1873.

The principal topics of interest during the past week have been the reduction in the minimum discount rate of the Bank of England, and the formation of a new syndicate to negotiate the sale of the remainder of the new 5 per cents, amounting to $300,000,000, which are to be issued in place of an equal amount of 5-20s retired. The syndicate includes the Rothschilds, Barings, and three of the largest American banking houses. The effect of these announcements on the financial markets have been favorable. Money has been steady at 7 per cent., and prime commercial paper has been in fair demand at 8@9 per cent.

Gold, owing to the large shipments to cover maturing sterling loan, has been strong. The following will show the range of the premium:

	Highest.	Lowest.
Thursday	113⅞	113¾
Friday	114¼	114⅛
Saturday	114¼	113¾
Monday	114	113⅝
Tuesday	114⅛	113¾
Wednesday	114	113¾

The stock market was strong, but toward the close of the week irregular, with principal dealings in Lake Shore, Erie, N. Y. Central, Ohio, Pacific Mail, Western Union and Atlantic and Pacific. Miscellaneous shares have been dull. The highest and lowest of to-day's quotations on change are given below.

Bonds, both here and abroad, have been buoyant. The Credit Mobilier disclosures, and the order from Congress to the Treasury Department to withhold all payments due for public transportation, has had a depressing effect upon Union Pacifics, but other railroad bonds have been strong, though dull. The closing quotations of governments are given below:

The following tables show the movements in foreign trade for the week:

IMPORTS.

	1871.	1872.	1873.
Tot. for week	$9,705,704	$9,954,455	$10,106,401
Prev. reported	11,231,326	12,383,939	16,630,268
Since Jan 1	$20,937,030	$22,338,394	$26,736,669

Included in the imports of general merchandise for the week are:

Anvils	158	$1,956
Brass good	35	5,586
Bronzes	7	1,488
Chains and anchors	270	12,944
Copper	..	84,588
Cutlery	163	62,430
Guns	54	8,690
Hardware	58	7,062
Iron, hoop, tons	2	122
Iron, pig, tons	1,188	35,498
Iron, sheet, tons	62	4,548
R. R. bars	14,591	178,192
Iron, cotton ties	425	1,179
Iron tubes	1,326	3,830
Iron, other, tons	1,793	68,510
Lead, pigs	20,805	124,258
Lead, tons	40	2,844
Metal goods	405	47,695
Nails	3	199
Needles	25	12,809
Old metal	..	5,212
Plated ware	6	328
Per. caps	4	899
Saddlery	4	938
Steel	6,963	83,535
Silver ware	4	123
Tin, boxes	20,221	174,511
Tin, 3896 slabs	231,569	71,719
Wire	950	15,069

EXPORTS, EXCLUSIVE OF SPECIE.

	1871.	1872.	1873.
For the week	$5,134,499	$5,150,172	$4,856,819
Pre. reported	13,569,683	9,415,177	12,554,662
Since Jan. 1	$18,704,182	$14,565,349	$17,411,481

EXPORTS OF SPECIE.

Total for the week	$2,955,845
Previously reported	3,023,388
Total since January 1, 1873	$5,979 233

The bank statement shows a loss in net reserve of $303,400, the banks now holding in lawful money $5,295,700 above the 25 per cent. requirement. The banks have less specie than reported, the average being a falling one, and more legal tenders, that being a rising average. The following is a comparison of the averages of the past two weeks:

	Jan. 18.	Jan. 25.	Differences.
Loans	$278,309,600	$282,159,100	Inc. $3,949,500
Specie	21,110,800	20,371,700	Dec. 739,100
Circul'tion	27,542,200	27,529,200	Dec. 13,000
Deposits	212,588,200	216,670,800	Inc. 4,082,600
Leg. Ten	44,420,900	45,974,000	Inc. 1,553,100

Government bonds at the close were firm. We quote:

	Bid.	Asked.
U. S. Currency 6s	115½	115½
U. S. 6s, 1881, reg	117⅛	117⅛
U. S. 6s, 1881, c	119⅛	119⅛
U. S. 6s, 5-20 reg. May and Nov	115⅛	115⅛
U. S. 6s, 1862, c	115⅛	115⅛
U. S. 5-20 1864, c	115⅛	115⅛
U. S. 5-20 1865, c	116⅛	116⅛
U. S. 5-20 1867, r. Jan. and July	115⅛	115⅛
U. S. 5-20 1865, c. Jan. and July	115	115¼
U. S. 5-20 c. 1867 " "	116⅛	116⅛
U. S. 5-20 c. 1868	116⅛	116⅜
U. S. 10-40 reg	114	114⅛
U. S. 10-40 c	115⅛	115½
U. S. 5s of 1881, reg	113⅛	113¾
U. S. " c	114⅛	115

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	105⅛	104⅝
Lake Shore	95½	95⅛
Rock Island	113¾	113½
Del., Lack. & Western	101	99¾
Wabash	74⅛	73⅛
Harlem	120½	120¼
Western Union Telegraph	84⅛	84
Northwestern	83⅛	83⅛
" preferred	92	91
Milwaukee & St. Paul	53⅞	53⅜
Milwaukee & St. Paul preferred	79	78¼
Atlantic and Pacific preferred	38⅞	37
Pacific Mail	72¾	72⅛
Erie	66⅜	65⅞
Ohio & Mississippi	49¼	48⅝
Boston, Hartford & Erie	9⅞	8⅞
Union Pacific	35½	35⅛
C. C. & I. C.	41⅜	40⅞
Hannibal & St. Joseph	49¾	49
" " preferred	71	70
Adams Express	100¼	100
Am. Mer. Union Express	70	69⅞
U. S. Express	78½	78¼

Auction Sale of Scranton Coal.

The following shows the prices obtained at to-day's sale, compared with those of last month and January, 1872:

	Jan. 1872.	Jan. 3, 1873.	Jan. 20, 1873.
Steamboat	$3 77½	$3 75	$4 11¾
Grate	3 59½	3 92½	4 27⅜
Egg	3 51	4 08¾	4 34½
Stove	4 09	4 80	4 04½
Chestnut	3 37½	3 59	3 92½

GENERAL HARDWARE.

There are a few Western buyers in our market, and we hear of good bills being sold them. Letter orders are beginning to come to hand to a considerable amount. The extraordinary aspect of the Iron market confirms the feeling of strength we have for some time noted, and buyers seem to accept the fact that low prices for Hardware are not to be expected for some time. It is noteworthy that buyers in the Iron districts—where they are supposed to know pretty well the state and prospects of the Iron market—have this year begun to buy at an unusually early date, and to an extent that shows their belief in the stability of prices. We give below Sargent & Co.'s discount sheet, which may be taken as an indication of the prices of other makers of similar goods who have not yet issued their circulars. The prices of Verree's Hatchets have been revised and slightly advanced. The following are the new prices:

Nos.	1	2	3
Shingling	$7·00	$7·50	$8·00 ₱ doz.
Claw	7·50	8·00	8·50 "
Lathing	7·00	7·50	8·00 "

The list prices of Cheney's Hammers have been advanced 5 per cent. all through.

Henry Disston & Sons issue the following revised discount sheet, under date of 17th inst. By reference to their list it will be seen that Butcher Bow Saws, Butcher Saw Blades, Hack Saw Blades and Plastering Trowels are now discount 12½ per cent., instead of 7½, as before published. Some other changes of minor importance have also been made:

On and after date our discounts will be as follows:

Page 8 to 13 inclusive	12½ %
14 to 21 "	7½ %
22	12½ %
23 to 25	40 %
26	50 %
27	10 %

There is no change to note in English Hardware; the market is remarkably firm in its tone, especially for heavy goods. Chains and Anvils are unchanged. In Nails there is a good business doing, and the card rate, viz., $5 for 10d. to 60d., less the usual discount. As a fair quotation for 100 keg lots, although for lots of 500 kegs and over a concession of from 5 to 10 cents per keg has been made in addition to the usual discount, or, in other words, 500 keg lots have been quoted at $4·70, net.

On the 1st instant, Andrew Mills, Jr., was admitted to partnership in the firm of Henry Seymour & Co., the title remaining as before. This concern has issued a revised price list and discount sheet of their patent improved Shears and Scissors. The following is their new list on Tailors' Shears; the balance of the list is unchanged:

TAILORS' SHEARS—MAROON JAPAN HANDLES.

No.	Full Length.	₱ Pair.
3	11¼ inches	$5·00
4	12½ "	5·00
5	13 "	8·00
6	13½ "	9·00
7	14 "	10·00
8	14½ "	11·00
9	15 "	12·00
10	15½ "	13·00
11	16 "	14·00
12	16½ "	15·00

Below we publish their discounts for the entire list:

	Discount.
Tailors' Shears	40 %
Bankers' Shears	35 %
Candy Shears	40 %
Bent Trimmers	40 %
Straight Trimmers, No. 1 to 3	40 %
" 9 to 16	50 %
Ladies' Scissors	50 %
Pocket "	50 %
Tailors' Points	50 %
Barbers' Scissors	50 %
Button-Hole Cutters (Leypoldt's)	15 %
" " (Chase's)	35 %
Sheep Shears (Regular)	25 %
" (Thumb-Piece)	15 %
Tinners' Snips	5 %
Pruning or Sheep-Toe Shears	25 %
Hedge Shears	20 %
Horse Clipping Shears	20 %
Lamp Trimmers	25 %
Sewing Machine Scissors	35 %
Extra Quality and Finish, above styles	25 %

The Manufacturers of Cordage adopted the following list on the 28th inst., which is a decline of half a cent from previous figures:

Manila Cordage, sizes above 12 th'd	18c
" " 6 th'd and 9 th'd (¼ in. and 5-16 in. diam)	19c
Manila Cordage, 12 th'd (¾ in. diam)	18½c
" Hay Rope	18½c
" Cordage, bolt rope yarns	20c
" " " " 6 th'd and 9 th'd	21c
Tarred Manila	17½c
Fine Tarred Manila Lath Yarn	19c
Sisal Rope, sizes above 12 th'd	16c
" 6 th'd and 9 th'd	17c
" 12 th'd and Hay Rope	16½c
New Zealand Cordage, sizes above 12 th'd	16c
" " " 6 th'd and 9 th'd (⅜ and 5-16 in)	17c
New Zealand Cordage, 12 th'd (⅜ in) and Hay Rope	16½c

We publish herewith the price list for Davis' Patent Duplex Wrench, manufactured by the Philadelphia Tool Company, the discount from which is 40 per cent. In full cases an extra discount is allowed.

BRIGHT OR BLACK.

Size.	Per doz.
8 inch	$30 00
12 "	36 00
15 "	48 00
18 "	60 00
Reversible Steel Jaws	4 00

Combining as it does the good qualities of an ordinary Nut Wrench, with that of from six to sixteen pairs of Pipe Tongs, and with all its parts interchangeable and manufactured from the best materials, we cheerfully commend it to the notice of our readers. An illustration of this tool will be found in advertisement in another column.

The Stanley Rule and Level Company will issue a new discount sheet under date of February 1, 1873. The only changes made from their former sheet (January 8) are: Rules, 50 and 10 off; before, 40 and 10; and Door Stops, No. 6, 20 and 10 off; before, 10 and 10. The condensed price list published by the S. R. & L. Co. on 1st of January, exhibiting, as it does, the full variety of tools, etc., manufactured by them, with prices revised to date, and all upon one sheet, proves a great convenience to buyers and sellers of their extensive line of goods. For sending by mail, for carrying in the pocket, or for use about the desk, it could hardly be improved.

J. D. Farrington, Jr., manufacturer of patent Self-Righting Cuspadores, Miner's Street Lamps and Stamped Japanned and Plain Tin Ware, has removed from 24 and 26 Murray street to No. 38 in same street.

Clark, Wilson & Co. are now selling the well-known California Borax, which is used very generally by Axe and Shovel makers, as well as other manufacturers. Their price by the case of 100 pounds is 34 cents per pound, or 32½ cents by 10 cases.

The following is the January discount sheet of Sargent & Co. so far as it relates to goods of their own manufacture. It has just been received from the printers, and is not yet, we believe, in the hands of the trade. The following changes have been made since it was printed.

Pages 123 to 126, Sargent's Patent Sash Fastener, change the discount to 10 per cent. from the revised list on page 8 of our discount sheet and change the revised list of No. 136 to $3·75; No. 156, $5·50; No. 138, $4·25; No. 158, $5·00.

Page 174 No. 20, Fast Joint Butts Broad change list to the same as revised list of No. 10 Broad, 20 per cent. discount, instead of 16⅔ as printed on page 11 of our discount sheet.

Sargent & Co. state that they will soon issue an Appendix No. 3, showing goods added since Appendix No. 2 was published, and they expect to have a new and complete illustrated catalogue and price list within a year. It must be borne in mind that from all the following prices their usual discount of 10 per cent. for prompt cash is taken:

DISCOUNTS FROM SARGENT & CO.'S PRICE LIST OF 1871 AND APPENDIX NO. 2 OF 1872.

Page.		Dis. %
18	No. 300 Square Bolts	30
18	320 Square Neck Bolts	20
18	332 Flat Shutter Bolts	35
19	340 Cottage Bolts	35
19	350 Tower Bolts	35
19	362 Barrel Bolts	35
19	363 Extra Heavy Barrel Bolts	15
20	Staples for Square Bolts	20
20	Floor Plates for Square Bolts	30
20	No. 381 Chain Bolts	35
20	382 " with Reverse Bevel	35
21	383 Extra Heavy Full Cased Chain Bolts	30
21	390 Round Cased Chain Bolts	20
22	390 " Foot Bolts	20
22	391 Spring Foot Bolts	40
22	392 Double Spring Foot Bolts	40
23	367 Wrought Iron Barrel Bolts	Add 10
23	368 " " "	Add 10
24	335 " Shutter "	35
24	337 " " "	40
24	338 " " "	40
25	305 " Square "	10
25	306 Extra Heavy Wrought Iron Square Bolts	10
25	306 Extra Heavy Wrought Iron Store Door Bolts	10
25	315 Wrought Iron Spring Bolts	10
26	515 " Brass "	10
26	519 " " "	10
27	525 " Iron Neck Bolts	10
27	525 " Brass "	10

27 — 500 Cast Brass Square Bolts, revised list — net

Inch	3	4	5	6
₱ doz	$3·00	4·00	5·00	6·00

27	522 Cast Brass Neck Bolts	net
28	Cast Brass Flat Bolts (change list of No. 53 to $2·20)	net
28	No. 581 Brass Chain Bolts (change 2 in. to $5·00, 6 in. to $10·25)	net
28	681 Silver Plated Chain Bolts	net

29 — Square Cased Bolts, Cast Brass, revised list — net

Nos.	202	203	204	212	213	214
₱ doz.	$3·50	4·50	5·75	3·50	4·50	5·75

29	Square Cased Bolts, Silver Plated	net
29	" Berlin Bronzed	16⅔

30 — No. 560 Elm City Brass Barrel Bolts, revised list — net

Inch	3	4	5	6
₱ doz	$4·00	5·00	6·00	7·50

30 — 561 Elm City Brass Barrel Bolts, revised list — net

Inch	3	4	5	6
₱ doz	$4·00	5·00	6·00	7·50

31 — 562 Elm City Brass Barrel Bolts, revised list — net

Inch	3	4	5	6
₱ doz	$4·00	5·00	6·00	7·50

31 — 563 Elm City Brass Barrel Bolts, revised list — net

Inch	3	4	5	6
₱ doz	$4·00	5·00	6·00	7·50

32 — Cast Brass Barrel Bolts, revised list — net

Nos.	101	102	103	104	105
₱ doz.	$3·75	4·50	5·00	5·75	7·00
Nos.	115	116	117	118	119
₱ doz.	$3·50	4·00	4·50	5·25	6·00
Nos.	128	129	130	131	132	133
₱ doz.	$2·75	3·00	3·50	4·00	4·50	5·00
Nos.	140	141	142	143	144	145
₱ doz.	$2·50	2·75	3·00	3·50	4·00	4·50

33 — Cast Brass Barrel Bolts, revised list — net

Nos.	108	109	110	111	112
₱ doz.	$3·75	4·50	5·00	5·75	7·00
Nos.	122	123	124	125	126
₱ doz.	$3·50	4·00	4·50	5·25	6·00
Nos.	134	135	136	137	138	139
₱ doz.	$2·75	3·00	3·50	4·00	4·50	5·00
Nos.	146	147	148	149	150	151
₱ doz.	$2·50	2·75	3·00	3·50	4·00	4·50

34 — No. 30 Cast Brass Flush Bolts, revised list — net

Inch	2	2½	3	4
₱ doz	$0·45	·50	·60	·80

34 — 40 Cast Brass Flush Bolts, revised list — net

Inch	2½	3	4	5	6
₱ doz.	$0·60	·70	·90	1·10	1·30

34 — 45 Cast Brass Flush Bolts, revised list — net

Inch	2½	3	4	5	6
₱ doz.	$0·85	·95	1·25	1·50	1·75

34 — 50 Cast Brass Flush Bolts, revised list — net

Inch	4	6	8	10
₱ doz.	$1·40	1·90	2·75	3·25

34 — 60 Cast Brass Flush Bolts, revised list — net

Inch	4	5	6	8	10	12
₱ doz.	$1·60	1·80	2·10	3·00	4·00	4·75

34 — 65 Cast Brass Flush Bolts, list as printed in the book — net

35 — 80 Cast Brass Flush Bolts, revised list — net

Inch	6	8	10	12	15	18
₱ doz.	$3·75	4·50	5·50	6·75	8·00	10·00
Inch	24	30	36	48	60	
₱ doz	$12·50	16·00	22·00	30·00	40·00	

35	Cast Brass Ship Flush Bolts, revised list — No. 24 $1·75, 25 $2.	net
36	Mortise Front Door Bolts	net
37	Cast Brass Straight Cupboard Bolts, revis. list	net
281	$1·40, 282 $2.	
37	Flat Cupboard Bolts, Brass, Japanned and Plated, revised list	net

Nos.	201	205	208	211	215	218	231	235	238
₱ doz.	$2·50	2·50	3·25	·60	·80	1·00	4·00	4·00	6·50

37	Flat Cupboard Bolts, Berlin Bronzed	16⅔

38–40 — Cupboard Latches, revised list — 20

Nos.	81	83	85	87	93	95
₱ doz.	$0·95	1·40	2·10	3·75	1·50	2·50
Nos.	97	100	101	113	123	133
₱ doz.	$4·00	57	·95	1·50	1·50	1·50

*41	Wrought Brass Show Case Catches	net
*41	No. 25 Flush Ring " " "	net
*41	225 " " "	add 10
*42	Cast Brass Show Case Catches	net
*42	Wrought Plate Cupboard Catches, revis. list	net

Nos. — 0 1 2 3 1005 1205 1405 1505

₱ Gross	$8·00	9·00	11·00	12·50	10·00	11·00	12·50	14·00

*43	Cast Brass Cupboard Catches, revised list	net

Nos. — 10 11 12 13 15 16 17 18

₱ Grs.	$12·50	15·00	18·00	21·00	15·50	18·00	20·00	23·00

*43	Silver Plated Cupboard Catches, Nos. 215 to 213	
*45	Ex. Heavy Cast Brass Cupboard Catches, revised list	net

Nos. — 14 19

₱ Gross	$32·00	23·00

*43	Ex. Heavy Silver Plat. Cupb'd Catches No. 219	
44	Fancy Rim Cupb'd Catches, Nos. 22 to 24	25
44	" " 32 to 34	net
44	" " 42 to 51	25
44	Japanned " 110 to 112	15

45 — Square Plated Rural Catches, revised list — net

Nos.	28	29	30	31	128	129	130	131
₱ Gross.	$5·00	5·25	5·75	6·50	8·00	8·25	8·50	8·75

45 — Rural Cupboard Catches, revised list — net

Nos.	61	62	63	64	161	162	163	164
₱ Gross.	$4·75	5·25	6·00	7·00	6·50	7·00	8·00	9·00

46 — Rim Cupboard Catches, Nos. 105, 106 — net
" " 125, 126
" " 115, 116 — net
" " 125, $48, 136 $57 — net

47 — Lever Cupboard Catches, revised list — net

Nos.	40	140	41	141
₱ Gross.	$15·00	27·00	18·00	30·00

*With Sargent's Patent Triangular Faced Bolt.

Page.		Dis. %
48	Rim Cupb'd Turns, change list of No. 50, $6·67	10
49	French Window Catches, revised list	net

Nos. — 90 91 190 191 195 196 197 290 291

₱ grs	$24·00	27·00	7·00	7·50	13·00	14·00	15·00	39·00	45·00

50	Door Catches	20
51	Chain Door Fastenings, revised list	net

Nos. — 34 36 38 44 46 48

₱ doz.	$1·25	1·50	1·75	1·75	2·00	2·50

Nos. — 64 66 68 164 166 168

₱ doz.	$5·75	8·50	11·25	10·00	16·00	20·00

53	Chain Door Fastenings	net
53	Door Knocker's	20
53	No. 5 Brass Door Buttons, revised list	net

Inch — 1⅛ 1¼ 2

₱ Gross	$2·50	3·00	3·25

53	10 Japanned Door Buttons, revised list	net

Inch — 1⅛ 1¼ 1⅜ 1¾ 2 2¼ 2½

₱ gross	$0·35	·45	·50	·60	·75	1·10	1·50

54	15 Door Buttons on Plates, revised list	net

Inch — 1⅛ 1¾ 2

₱ gross	$7·00	7·75	9·00

54	20 Door Buttons on Plates, change 1⅛ in. to $1·75, 2¼ in. $3	net
54	25 Door Buttons on Plates, change 1¾ in. to $2·37, 2 in. $2·75	net
55	Barn Door Latches	net
56	No. 30 Roggin's Latches	15
"	32 "	15
57	Door Handles	10
57	Heavy Thumb Latches	net
58	No. 67 Berlin Bronzed Door Handles	20
59	367 " " make void	
60, 61	Store Door Handles, Nos. 6, 16 & 26	15
62	No. 7 " " $5·40 per dozen	net
63	77 " " $28·00 "	net
64, 65	Store Door Handles, revised list	net

Nos. — 80 81 82 90 91 92

₱ doz.	$24·00	38·00	90·00	26·50	42·00	95·00

66	Store Door Handles	20
67	" " Nos. 190 to 295	10
"	" " 191 to 291	5
"	" " 292	add 10
68	No. 307 Berlin Bronzed Store Door Handles	10
69–71	Bronze Metal Store Door Handles	net
72	Door Pulls, change list of No. 3 to $0·42	10
73	Cast Brass Door Pulls, revised list	net

Nos. — 11 14 302 304 306

₱ doz.	$1·50	2·25	1·75	2·25	2·70

74	Door Pulls, revised list	net

Nos. — 5 60 70 80 71 81

₱ doz.	$4·75	6·50	7·25	7·50	10·00	10·00

75	Door Pulls, revised list	net

Nos. — 82 84 86 83 85 87

₱ doz.	$7·50	7·50	7·50	10·00	10·00	10·00

76	Bank Door Pulls	20
77	" " Bronze Metal	add 10
78, 79	Drawer Pulls, change list Nos. 102 12 $3·25 5·50; change list Nos. 110 40 $2·25 2·75	10
80	Drawer Pulls, change list Nos. 152 153 51 $4·25 4·75 4·00; change list Nos. 52 53 $5·00 6·50	net
81	Drawer Pulls, change list Nos. 201 202 203 $3·00 4·50 7·25; change list Nos. 204 0 1 $7·75 3·25 4·00	net
82, 83	Drawer Pulls, change list Nos. 176 76 See appendix; change list Nos. 186 86 $6·00 7·00	net
84	Drawer Pulls, No. 96 List price in numerical order, make void	net
85	Wrought Chest Handles	25
85	Riveted Lifting "	net
86	Chest Handles, revised list	net

Nos. — 11 12 13

₱ doz. pairs.	$1·50	$2·50	$3·50

87	Flush Drawer and Chest Handles	net
87	Flush Trap Door Rings, change list of No. 1 to $1	net
88	Cast Brass Flush Drawer Handles, Plain Pattern	10
88	Cast Brass Flush Drawer Handles, Fancy Pattern	25
89	Cast Brass Flush Rings, revised list	net

Inch — 1 1⅛ 1¼ 1⅜ 1½

₱ doz.	$0·90	$1·00	$1·20	$1·30	$1·40

89	Brass Lifting Handles No. 1	net
89	" " No. 2	10
90	No. 10 Brass Drawer Handles	net
90	15 " Trunk "	net
90	20 " Newark Trunk Handles	net
91	25 " Shelf Box Handles	net
91	Brass Ring Handles	net
92–98	Coat and Hat Hooks, change list of No. 8 on page 96 to $2	10
99	Japanned Drive Coat and Hat Hooks	10
99	Hat Rack Hooks	10
100	Coat and Hat Hooks	10
100	Hotel or School House Hooks, change list of No. 300 to $4·50	10
101	Hotel or School House Hooks	10
102–105	Coat and Hat Hooks	10
106	" " revised list	10

Nos. — 16 17 18 19

₱ doz.	$2·90	3·06	3·90	3·06

107	Coat and Hat Hooks	10
108	" change No. 85 to $2·50; 87 $3·50	10
108	Coat and Hat Hooks numerical order, make void	10
109	Brass Hat Hooks	10
110	Brass Surplice Pins	10
111	Hat Rack Pins	10
111	Brass Wardrobe Hooks, No. 0	net
"	" Nos. 4, 5 & 6	10
112–113	Wardrobe Hooks	10

Change list of Nos. — 7 8 9

	$1·00	1·25	1·60

113	Japanned Screw Hat Hooks	10
114	Ceiling Hooks	10
115	Harness Hooks	10
116	Store Rack Hooks	10
116	Clothes Line Hooks	10
117	Brass Screw Hooks	add 10
117	Brass Drive Hooks	add 10
117	No. 109, Acorn Tip Brass Screw Hook	add 10
117	L. G. or Picture Hooks, change list No. 2 to $9·00	net
119	Chandelier Hooks	10
119	Lamp Hooks, change list of No. 26, to $15	net
120	Japanned Cup Hooks	net
120	Brass Cup Hooks, No. 82	net
"	" Nos. 89 and 90	10
121	No. 50 Iron Hooks and Eyes	25
121	60 Brass "	20
121	65 Brass Hooks without the Eyes	20
122	Cabin Door Hooks	net
122	Ship Cabin Door Hooks	add 10
123	Sargent's Patent Sash Fasteners, revised list	15

Nos. — 20 21 120 121 131 141 151

₱ doz	$0·37	·45	·65	·70	1·50	2·00	1·75

Nos. — 122 132 142 152 121 134 154

₱ doz	$0·85	2·00	2·25	2·15	1·25	3·00	3·50

Nos. — 135 136 146 156 145 148 158

₱ doz	$3·00	3·50	4·25	5·00	4·50	4·75	5·50

124	" " list as printed in the book	
127–131	Sargent's Sash Fasteners, revised list	net

Nos. — 200 220 221 261 222 262 205 224 225

₱ doz	$0·36	2·00	2·25	3·00	2·25	·80	3·00	3·00

Nos. — 213 233 273 214 234 274 215 235 275

₱ doz	$0·85	2·38	3·10	·95	2·75	5·00	·95	2·75	5·00

Nos. — 237 277 238 278 227 267 228 268

₱ doz	$4·00	6·00	4·25	6·50	4·00	6·00	4·25	6·50

131	List price of Sash Fasteners in numerical order make void	
132	Sash Lifts, Cast Brass, revised list	net

Nos. — 13 14 15 16 18

₱ gross	$8·25	12·00	5·50	6·50	8·00

Nos. — 23 24 25 26 28

₱ gross	$18·00	24·00	12·50	15·00	15·00

133	Sash Lifts, No. 44, $4·25 per gross	net
133	" No. 30	15
133	" No. 41	15
134	"	15
134	Japanned Shutter Bars	net
135	No. 31, Boston Pattern Shutter Bars, revised list	net

Inch — 1¼ 2 2½

₱ doz	$1·00	1·10	1·25

135	No. 32 Boston Pattern Shutter Bars, revised list	net

Inch — 1¼ 2 2½

₱ doz	$1·40	1·60	2·00

135	No. 35, Boston Pattern Shutter Bars	net
136	Ohio Pattern Shutter Bars	add 10
136	No. 1, New York Pattern Shutter Bars, revised list	net

Inch — 1¼ 2 2½ 3

₱ doz	$1·15	1·30	1·50	1·75

136	2, New York Pattern Shutter Bars, revised list	net

Inch — 1¼ 2 2½ 3

₱ doz	$3·00	3·25	3·50	3·75

136	11, Oval Pattern Shutter Bars	45

Change list of — 2½ 3

	$2·25	2·50

Page.		Dis. %
07	No. 10 Nut Cracks, $3·25 per dozen	net
208	Paper File Hooks	10
208, 209	Bird Cage Hooks	net
210	Boot Jacks No. 14 is Fancy Bronzed, not Japanned	net
210	Cork Pressers	net
211	Iron Nail Hammers and Shoe Hammers	10
212	Tack Hammers	20
213	Tack Claws, revised list	20
	Nos. 1 2 11 12	
	Per dozen $1·10 1·00 1·75 1·50	
213	Carpet Stretchers	20
213	Paste Jaggers, Brass, $10, Plated, $11 ℔ gross	net
213	Ice Axe and Pick	20
213	Ice Awls	20
214	Cake Turners	20
214	Sad Irons (change list to 6c. per lb.)	net
215	" Iron Stands	20
215	Coffee Pot Stands	20
216	Sausage Stuffers	10
216	Meat Cutters	
217	Homes' Patent Mop Heads, add to the list, No. 15, Tinned, per dozen, $3·50	10
217	Iron and Brass Head Pokers	net
218	Cast Iron Coal Shovels and Sifters	add 10
218	Stove Cover Lifters	20
210	Berlin Bronzed Fire Iron Stands, see appendix	
221	Fire Iron Stands	net
222-223	Blower Stands	net
224	Berlin Bronzed Fire Dogs	net
225	Bronzed and Japanned Fire Dogs	net
226	Fire Dog Tops	10
226	Brass and Japanned Kettle Knobs	net
226	Iron Washers, revised list	net
	3-16x½ ¼x9-16 ¼x¾ 5-16x⅝ 5-16x¾ ⅜x¾ ⅜x⅞	
	$0·39 ·39 ·36 ·36 ·31 ·31 ·26	
	7-16x15-16 ½x1 ½x1¼ 9-16x1¼ ⅝x1½	
	$0·22 ·21 ·18 ·16 ·16	
229	Stebbins' Gates, to Screw	50
229	" with Tinned Shank	40
229	" Metallic Packed, to Screw	net
229	" " with Tinned Shank	net
229	Stebbins' Milk Can Gates	10
229	" ..il Vat Gates	net
230	Sargent's Patent Hanging Twine Boxes, Nos. 11 and 13	30
230	Sargent's Patent Hanging Twine Boxes, Nos. 21 and 23	15
231	Bee-hive Twine Boxes	10
232	Kentucky Cow Bells	20
232	Common Cow Bells — Change list of No. 0, $1·35; Change list of No. 1, $1·55	20
233	Western Cow Bells	20
233	Cast " and Sheep Bells	10
234	Ox Balls, revised list	net
	Nos. 0 1 2 3 4 5	
	℔ gross $3·75 5·25 6·00 7·00 8·00 12·00	
	Nos. 11 12 13 14	
	℔ gross $4·50 5·00 5·50 6·50	
234	Durham Ox Balls	net
234	Tall Pattern Ox Balls	net
235	Bull Rings	30
235	Cattle Leaders	30
236	Ox Bow Pins	30
236	Wagon Stake Irons (change list of No. 2, to $1·20)	10
236	No. 60 Wagon Bow Staples, made of Half-Round Iron (change list of 2 in. to $0·35, 2¼ in. $0·38)	25
237	Horse Hitching Chains, Japanned	10
237	" " Tinned	net
237	Cattle Ties	40
238	No. 10 Hitching Hooks and Rings	40
238	15 Hitching Rings	40
239	5 Wrought Staples, made by hand	15
239	10 Wrought Hooks and Staples, made by hand (change list of 4 in. $4·25)	20
240	20 Wrought Hasps and Staples, hand made Staples (change list of 9 in. to $0·85, 10 in. ·90, 12 in. $1·05)	20
240	25 Wrought Hasps and Staples, hand made Staples (change list of 12 in. to $1·30)	20
240	30 Wrought Hasps and Staples, hand made Staples (change list of 9 in. to $1·10)	20
240	35 Wrought Hasps and Staples, hand made Staples	20
241	40 Wrought Bent Hasps and Staples, hand made Staples	20
241	Heavy Corner Irons, revised list	20
	No. 14...Inch. ¾ ⅞ 1 1⅛ 1¼ 1⅜	
	℔ doz. $0·40 ·43 ·46 ·52 ·58 1·00	
	No. 24...Inch ¾ ⅞ 1 1⅛ 1¼ 1⅜	
	℔ doz. $0·50 ·53 ·56 ·62 ·68 1·12	
242	Wrought Meat Hooks, revised list	20
	Nos. 0 1 2 3 4	
	℔ gross $1·75 2·25 2·55 3·60 4·80	
	Nos. 10 11 12 13 14	
	℔ gross $2·80 3·40 3·70 4·90 6 45	
	Nos. 15 16 New Size.	
	℔ gross $7·00 9·50	
	Nos. 21 22 23 24	
	℔ gross $2·80 3·00 4·00 4·80	
	Nos. 31 32 33 34	
	℔ gross $3·70 3·90 5·10 6·20	
243	No. 60, Wrought Awning Hooks, revised list	20
	Inch 1¾ 2 2½ 3 3½	
	℔ gross $1·25 1·30 1·40 1·75 2·00	
	Inch 4 4½ 5 6	
	℔ gross $2·30 2·50 2·75 3·25	
243	Wrought Awning Rings, revised list	net
	Inch 1 1¼ 1½ 1¾ 2 2½ 3	
	℔ gross $1·50 1·50 1·60 2·00 2·20 3·00 3·50	
243	Nos. 50 & 55 Wrought Trap Door Rings and Staples	20
244	60 & 65 Wrought Iron Gate Latches	40
244	95 Cast Steel Cold Chisels	40
	95 " " assorted, ℔ doz. $5·75	40
245	72 Box Chisels	30
245	52 Horse Shoeing Pincers	add 10
245	60 Blacksmiths' Tongs	add 10
246	70 Wrought S Hooks	50
246	Wrought Iron Open or Lap Links	30
247	Hinge Nails, revised list	20
	No. 30 1½ 2 2½ 3 in.	
	℔ lb. $0·33 ·29 ·26 ·24	
	No. 40 2 2½ 3 3½ in.	
	℔ lb. $0·27 ·24 ·22 ·22	
247	No. 45 Hinge Rivets, revised list	20
	Inch 2 2½ 3 3½	
	℔ lb. $0·20 ·19 ·18 ·18	
247	50 Wagon Nails, revised list	20
	Inch 1¼ 1½ 2 2½ 2¾ 3	
	℔ lb. $0·37 ·36 ·36 ·33 ·33 ·33	
248	52 Rolled Plate Hinges	10
248	54 Rolled Raised Hinges	10
249	60 Fast Joint Plate Hinges	net
249	62 Loose Joint Plate Hinges	net
249	66 Hook Hinges (change list of 8, 10, 12 in. to 11c.)	net
250-255	Bed and Furniture Casters, revised list as published last week	20
256	Store Truck or Box Casters	net
256	Extra Heavy Mill or Store Truck Casters	net
257	Bedstead Fastenings, by the set	net
257	" " by the pound add 1c. per pound	net
258	Bed Hooks	20
258	Japanned Bed Keys	10
259	Brass Thread Escutcheons	net
259	Table Fasteners	20
259	Stool Pivots	20
259	Chair Screws	20
260	"	30
260	Piano Stool Screws	20
261-263	Silver Plated Coffin Handles	20
264	" "	10
265	" "	25
266	Silver Plated Coffin Handles, revised list	30
	Nos. 150 208 210	
	℔ doz pairs. $8·50 8·00 11·50	
267-270	Silver-Plated Coffin Handles, revised list	20
	Nos. 244 245 246 247	
	℔ doz. pairs. $15·00 13·50 12·00 10·75	
	Nos. 250 260 271 276	
	℔ doz. pairs. $2·60 2·60 10·00 14·50	
	Nos. 272 277 275 286	
	℔ doz. pairs. $10·50 15·50 12·00 38·00	
271-272	Silver-Plated Coffin Handles	25
273	" " No. 420	25
273	" " 701, $5·50, No. 710, $6·25	25
274	Silver-Pltd. Coffin Handles, Nos. 1140 to 1200	33⅓
274	" " 1411 to 1414	40
275	" " 1480	33⅓
275	White Metal Coffin Handles	10
276	" "	10
277	White Metal Coffin Hinges	25
277	" " Dowels	25
277	Silver-Plated Coffin Hinges, revised list	10
	Nos. 11 14 15 16	
	℔ doz. pairs. $1·50 1·30 1·40 1·80	
277	Silver-Plated Coffin Dowels, revised list	10
	Nos. 31 34 35 36	
	℔ doz. pairs. $1·50 1·30 1·40 1·80	
279	Silver-Plated Coffin Screw Caps and Studs	25
279	" Cross Studs	25
280	" Escutcheons	25
281	White Metal Coffin Thumb Screws and Tacks	net
281	White Metal Coffin Screws, revised list	40
	Nos. 16 18 20 24 30 34 36	
	1¼ in. Screws $1·48 1·50 1·55 1·57 1·70 1·58 1·70	
	1⅛ in. Screws $1·48 1·50 1·55 1·57 1·70 1·58 1·70	
281	White Metal Coffin Tacks, revised list	25
	Nos. 16 18 20 24 30 34 36	
	℔ gross $0·48 ·50 ·55 ·57 ·70 ·68 ·70	

Page.		Dis. %
282	Coffin Lining Nails, Nos. 1 to 4	10
	" " No. 10, W. M.	20
282	Britannia Coffin Plates	20
283	Silver Plated Coffin Plates	20
285	Carriage Knobs, Japanned	10
285	" English Finish	add 20
285	" Silver Capped	10
285	" Silver Plated	net
285	Band Nails	25
285	White Metal Mane Combs	20
288	Sargent's Patent Harness Snaps, Japanned	35
288	" " Tinned	25
289	Carriage Joints, Nos. 1 to 7	33⅓
289	" 22 and 27	25
289	" 11 to 17	33⅓
289	" 32 to 37	25
290	" 101 and 102	25
290	" 111 to 117	33⅓
290	" 132 to 137	25
291	Slat Irons with and without Standards	20
291	Wrought Iron Axles	20
292	Axle Eyes and Washers	20
292	Braces	20
292	Children's Carriage Springs	10
293	Dash Rail	20
293	Silver-Plated Handle Bows	50
294	Handle Tips	33⅓
294	Curtain Frames	15
294	Lining and Saddle Nails	10
295	Narrow Bands	20
295	Hub Caps	20
295	Pad Screws	20

DISCOUNTS FROM APPENDIX NO. 2.

[*Appendix No. 1 is Made Void.*]

Page.		Dis. %
5-6	Drawer Pulls	15
7	" change list No. 176, $6·00, No. 76 $7·00	net
8	Flush Chest Handles	10
9	Chest Handles, Berlin Bronzed	10
9	" Japanned	net
10	No. 24 Door Buttons, 1¾ in. $2·00, 2 in. $2·25	net
10	33 " $4·40 ℔ gross	net
11	182 Cupboard Catches	10
12	Berlin Bronzed Cupboard Catches, revised list	net
	Nos. 145 147	
	℔ gross $16·25 17 50	
12	No. 345 Bronze Metal Cupboard Catches	10
13	155 Cupboard Catches	10
13	175 "	10
14	Cupboard Turns	10
15	" No. 55, $3·05, No. 56, $3·60	10
16	No. 400 Square Bolts	15
16	452 Barrel "	15
17	490 Bottom "	15
17	481 Chain "	15
18	491 Foot "	15
19	483 Chain "	15
20	Cased Bolts, Cast Brass	net
20	Cased Bolts, Nickel Plated, revised list	net
	Nos. 243 244	
	℔ doz $9·00 11·00	
21	Chain Bolts, Cast Brass	net
21	Chain Bolts, Nickel Plated, revised list	net
	Inch 2 3 4	
	℔ doz $9·00 10·50 12·50	
22	Mortise Bolts, Nickel Plated	net
23	Bronze Metal Store Door Handles	net
24-25	Bronze Metal Store Door Handles, revised list	net
	Nos. 157 156 176 357 356 376	
	℔ set $3·00 3·00 3·25 2·75 2·75 3·00	
26-27	Bronze Metal Store Door Handles, revised list	net
	Nos. 257 256 276 457 456 476	
	℔ set $4·00 4·00 4·50 3·75 3·75 4·25	
28	Berlin Bronzed Store Door Handles, No. 17, $4 per doz	net
29	Berlin Bronzed Store Door Handles, No. 417	20
30	Nickel-Plated " " 97, $42 ℔ doz	net
31-32	Nickel-Plated Store Door Handles	5
33-37	Sash Fasteners	15
38	Sash Lifts, No. 45, $4·50 ℔ gross	net
38	" 47	15
39	" 12, 32	net
39	" 57, 67	15
40	Shutter Bars, Nos. 64, 65	10
40	" No. 66, 2 in. $0·50, 2½ in. $0·55	net
40	" 55, 2 in. $0·50	net
40	" 84, 2 in. $3	10
41	Im. N. Y. Pattern Shutter Bars, Nos. 91, 93	net
42	Drawer Knobs, No. 7	net
43	Shutter Knobs, No. 60	33⅓
43	" " Nos. 52, 56	33⅓
44-46	Coat and Hat Hooks	10
47	Chandelier Hooks	10
48, 49	Ceiling "	10
49	Boot Jacks, No. 15	net
50, 51	Bird Cage Hooks	net
52	Paper Files	10
52	Letter Clips	net
53-57	Fire Iron Stands	net
58	Fire Dogs	net
59	Blower Stands	net
60	Shelf Brackets	10
60	Saw Rods, No. 11	add 10
60	" No. 41	net
61	Masons' Lead Plumb Bobs	33⅓
61	Japanned " " No. 0, $3 ℔ doz	net
62	Nail Sets	40
62	Shaft Extension	net
62	Well Wheel Hooks	20
63	Gate Latches, No. 16	10
63	Hook Hinges, No. 68	net
64	Bed Spring Staples	net
64	Casters for Iron Bedsteads	20
64	Noiseless Truck Casters	net
64	Cast Steel Cold Chisels	40
64	Round Front Axles	20
64	Curtain Frames	15
65-67	Coffin Handles (change list of No. 152, $8·50)	30
68-69	" (patented) revised list	20

PACKED WITH ROUND HEAD SILVER CAPPED SCREWS.

Nos.	506	516	526	507
℔ doz. pairs.	$13·25	18·00	24·00	13·75
Nos.	517	527	515	
℔ doz. pairs.	$19·00	25·00	16·00	
Nos.	536	546	556	537
℔ doz. pairs.	$13·50	18·50	24·50	14·25
Nos.	547	557	545	
℔ doz. pairs.	$20·00	26·00	17·00	

70	Coffin Handles	30
71	" Thumb Screws	30
71	" Escutcheons	30
71	" Hinges, Silver-Plated on White Metal	10
73	" Ornaments, Plated on Brass	10
74	" " Plated on W. M.	25
75	" " Plated on Brass	10
76-77	Stebbins' N. P. Molasses Gates	50

It is not often that we charge our printers with making mistakes, but the following was so badly mixed in our last issue, that it is necessary to reproduce it this week. It was between three and four o'clock on Thursday morning when this matter was set, and the lateness of the hour was undoubtedly the cause of the mistake:

Smith, Burns & Co. have issued a new catalogue of their goods. We notice that they have added a long line of Tinware to the list of goods made by them. They have reduced the list prices of their Coal Hods and Morning Glory Hods, and arranged them so that they can take the same discount from both Japanned and Galvanized—a step which must prove of convenience to the trade. The following are the new price lists compared with the old:

PATENT STAMPED CORRUGATED-BOTTOM COAL HODS.

Japanned.

No.	14	15	16	17	18	
New price	$9·00	9·75	10·50	12·00	13·50	℔ doz
Old price	12·00	12·75	13·50	15·50	18·00	"

Galvanized.

No.	14	15	16	17	18	
New price	$13·00	14·50	15·50	17·50	19 50	℔ doz
Old price	15·00	16·00	17·50	19·50	22·50	"

MORNING GLORY COAL HODS—PATENT STAMPED CORRUGATED BOTTOM.

Japanned.

No.	15	16	17	
New price	$12·50	13·50	15·50	℔ doz
Old price	16·50	18·00	20·00	"

Galvanized.

No.	15	16	17	
New price	$18·00	19·50	21·00	℔ doz
Old price	21·00	22·50	24·00	"

FANCY FILLETED.

No.	15	16	17	
New Price	$18·00	19·50	21·00	per doz.

Discount on the above, 25 per cent. The Excelsior Polished Deep Fry Pans made by this house are well finished, and made of heavy iron. They are sold at a discount of 20 per cent. from the following list:

No.	1	2	3	4	5	6	7	8	9
Per doz.	$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00	

Their combined Chamber and Commode Pail took the premium at the last Fair of the American Institute. It is sold at a discount of 10 per cent. from the following list:

No.	2	3	4	
Galvanized	$16·50	18·00	20·00	℔ doz.
Grained	14·50	16·00	17·00	"
Green	13·50	15·00	16·00	"

Brown, Harris & Hopkins have taken the sole agency of the Burgess Scythe Rifles, of which they will always keep a good stock, and can ship direct from the factory at West Morris, Conn., when more convenient. We quote from their circular:

"These rifles have been sold in the New England States for many years, and being manufactured from the best quality of Turkish emery, are always to be relied on to produce a fine cutting edge, and must not be classed with the numerous common sand rifles, of which the market is always full. They will be put up—as usual—in three dozen packages (assorted Nos. 1, 2 and 3), and packed in one gross cases. Being well known, they can always command a ready sale at remunerative prices. The price for 1873 will be $10 per gross, net cash. All orders at one time for 10 gross, 10 per cent. discount; 25 gross, 15 per cent.; 50 gross, 20 per cent.

IRON.

American Pig.—The firmness noted last week has been fully maintained and the market closes very strong, a good many transactions having taken place at the high prices ruling. The present and prospective strength of the Scotch Iron market and the tone of the English mills have had great effect in stiffening this market. With Scotch Iron held at high prices, it is not likely that any very great quantity will be shipped to this country; and at present prices for English bars they cannot be imported to compete with American Iron; and all advices from England point to the probability of further advances; so that, even at higher rates than those now ruling, it looks as if American manufactured Iron would be without severe foreign competition for some time. There are, however, many well informed people who think that the market is perceptibly easier, and that prices tend downward. They think that the companies will have to lower their prices considerably before the bulk of their Iron is marketed. A number of sales have been made at $50 for No. 1, extra. We quote $49 @ $50 for No. 1, extra, and $47 @ $49 for No. 2, extra.

Scotch Pig.—The stock of Scotch Pig Iron here is very small, and completely in hands of speculators, who have during the past week been buying and selling to and from each other, Glengarnock being the principal brand operated in. This attempt at excitement has a basis only in the continued strikes of the colliers in Scotland, which has occasioned some of the furnaces to blow out, which was much needed, so that repairs could be undertaken. The latest mail advices do not indicate any immediate prospects of a reconciliation between the strikers and their employers. Sales include 100 tons Carnbroe at $54, 300 tons Glengarnock at $55, and 100 tons Gartsherrie at $56, all said to be speculative purchases. Holders are now asking $58 for Gartsherrie, $57 for Glengarnock, and $54 @ $55 for Eglinton, but these are merely fancy prices, as the demand for consumption is limited to the smallest possible quantity necessary for immediate use.

Bar.—The demand is exceedingly light, the streets being so blockaded by snow that it is very difficult to transport goods if sold. Prices continue very strong.

Old Rails.—Late in the week 1000 tons Old English Rails were sold, but the terms were kept private; otherwise the market has ruled very quiet, but holders firm in their views, at $52 @ $54 gold.

Rails.—New English Rails continue quiet, and though without quotable change, the price is scarcely so strong, and it is probable an actual buyer could have them shaded a trifle. New American also remain inactive, but rule about steady at $80, currency, from the mills in Pennsylvania.

Scrap.—Holders are very strong and not disposed to consider bids under their views. Some 200 tons sold, the seller saying at "dollars over $55," which is generally supposed to mean $57 per ton. Nothing is offering at the close below $57·50 for No. 1, from yard.

METALS.

Copper.—Ingot Copper has been in but moderate request the past week and prices are a trifle easier, though at the close a more steady feeling appears to prevail, without, however, any recovery. The improved tone is due to cable advices reporting the late decline fully recovered and now quoting Best Selected at £100, and Chili Bars at £91 10/, but the light demand tends to check an advance here. Sales of Lake embrace 475,000 lbs. at 34c. @ 35c. cash, early delivery, the market closing at 34¼c. @ 34½c. cash. English Copper has sold to the extent of 200 tons Best Selected at 29c. @ 30¼c. cash, and 30½c. next month, closing at 30c. @ 30¼c. Manufactured Copper and Yellow Metal continued quiet but steady at old prices. We quote at 43c. for New Sheathing, 45c. for Bolts and Braziers, 27c. for Bronze and Yellow Metal Sheathing, and 32c. for Yellow Metal Bolts, net cash.

Tin.—The movement in Pig Tin continues limited to small parcels suitable for immediate use, and prices in absence of a free demand are a trifle easier. We now quote Straits 31c., English, 31½c. @ 31¾, and Banca, 36c. all gold prices. Plates are more active and prices rule very firm. We quote: I. C. Charcoal, $11 @ $11·25; I. C. Coke, $10 @ $10·25; Coke Terne, $8·75 @ $9·25; and Charcoal Terne, $10 @ $10·25.

Lead.—Pig is still neglected and prices, though unchanged, are wholly nominal. We quote at 6⅝ @ 6¾c., gold, for ordinary foreign. Manufactured Lead still rules steady at 9¼c. for Bar, 10½c. for Sheet and Pipe, and 16½c. for Tin-Lined Pipe, less the usual discount to the trade.

Spelter and Zinc.—There has been but a moderate inquiry for foreign Spelter, but holders continue very firm at fully the advance noted in our last. We quote Silesian at 7⅛ @ 7¼c., gold. Zinc quiet but steady at 10@10½c. for Sheet from store.

Antimony.—We hear of small sales of Regulus at 14½ c. gold.

PHILADELPHIA.

Messrs. Lloyd, Supplee & Walton, under date of January 28th, write us as follows: Trade remains quiet. There is no perceptible activity over that of last week, although prices are daily being called for through mail, as well as by parties coming into the city, and from present prospects Philadelphia will have a good spring trade. Customers continue to report they have but small stocks of goods upon their hands, consequently will find it necessary to make purchases before the retail trade opens. Almost all the manufacturers, or their representatives, have been in the city during the last week. In our experience we never have seen one-half so many at one time as visited here last week. Buyers found it impossible to make up orders, their time being completely taken up in giving not more than half an hour with each "interviewer," of which frequently from five to eight would meet in an office at one time. Under the circumstances prices were taken for comparison when leisure presents itself. We find, although manufacturers are desirous of making sales, it is hard to force concession in prices. The nail market remains a little unsettled, and the low prices of the last two weeks are the prices for to-day. 3d Fine Nails are offered at the low price of $7·50 per keg. We are able to report receipts from abroad of Cable Chain and Peter Wright's Anvils by several of our jobbing houses during the last ten days. Orders for Peter Wright's Anvils, which have been quite scarce for the last year, can now be filled at 12½ cents per pound, gold. Other English goods have been received within the last ten days, and the market will open with fair stocks of these goods on hand.

PITTSBURGH.

Pittsburgh, Jan. 25.—The Iron trade of this city is improving steadily but surely, and while there is an absence of speculation and excitement, the prospects are very encouraging, and a lively and satisfactory spring trade is confidently expected. There is but one draw back, which it is hoped will soon be removed: that is the stringency in money matters. The situation in this respect is also improving, as the market is working toward greater ease. It requires, as is well known, a very large amount of capital to carry on the iron business, in any of its various branches, with any degree of success or satisfaction; hence, when money is tight, trade is crippled and contracted.

The Pig Iron market continues strong, though business during the past week has only been fair; not from any falling off in the demand, but because of producers holding for an advance of from $3 to $5 per ton, to which consumers as yet seem unwilling to respond. Large sales of good Standard Mill Irons could be made for March and April delivery, at $40, 4 months; but producers have got their ideas up considerably, and are asking from $43 to $45. Here is where the trouble lies at present: business has been dragging for two weeks past in consequence of the inability of buyers and sellers to get together. How it will terminate it is of course impossible to foretell, but the indications generally favor the producers. They are aware of this, hence they are very stiff, feeling as they do that they have the market well under their control, satisfied that they will gain their point—that it is only a question of a little time. There is also considerable inquiry for good Foundry Irons, but there is the same difficulty here that exists in regard to Mill Irons: sellers are asking an advance to which buyers as yet are unwilling to respond, and consequently business has been rather light; not in consequence of any falling off in the demand, but, for the reason above stated, consumers are unwilling to operate at the advance, and holders seem determined not to sell unless they obtain it. Common and medium grades are firmer in consequence of the advance demanded for the best brands, but the inquiry is mainly for the latter kind. Good No. 1 Anthracite Foundry Irons sold at $48, 4 months, and good to choice No. 2 at $45 to $46·50; Mottled $36 to $38, and White at $35. There is more inquiry for Finished Irons and Nails, and the market is growing firmer in sympathy with the raw material; some of our manufacturers are not inclined to sell very largely at present prices, and the indication generally point to an early advance. The prospects are regarded as favorable for a good spring trade, as stocks in the West are very much reduced. The Steel trade continues moderately active, and while it is not as brisk as it was prior to the first of the year, it is nevertheless better than it usually is at this particular time. Prices are firm but unchanged.

ST. LOUIS.

Messrs. Semple Birge & Co. under date of Jan. 25th, write us as follows. The continued severity of the winter is retarding the opening up of trade which we had reason to anticipate. Financial matters in the West, however, are looking up, with a fair show of improvement. Orders come slowly, and the unsettled condition of prices will defer large operations in Hardware until the last moment. Stocks are running down very close, and a healthier tone of the market will result in the spring. We mention, as an item of special interest to American manufacturers of iron goods and machinery, the recent organization of the "St. Louis International Industrial Exposition," by leading manufacturers and business men of this city, on a permanent basis, with a capital of $1,000,000, for the purpose of an annual exhibition in this city of the general products of manufacturing industry in this and foreign countries. Permanent buildings on an immense scale are to be erected immediately, and a public call will be made through your columns to manufacturers to be present with their products at the opening in September of the present year.

CINCINNATI.

Messrs. Addy, Hull & Co., under date of Jan. 27, write us as follows: Market a shade firmer on all grades, with an improving demand and larger inquiry. The foundries and mills are generally resuming work for the new year, and holders are firmer in their views. Prices unchanged.

HOT BLAST CHARCOAL.

Hanging Rock	No. 1 ℔ ton	$55·00 @	—4 mos.
" "	No. 2	53·00 @ 54·00	—4 mos.
" "	Forge	45·00 @	—4 mos.
Tennessee	No. 1	54·00 @	—4 mos.
"	Forge	44·00 @ 45·00	—4 mos.
Alabama	No. 1	55·00 @ 56·00	—4 mos.
Missouri	No. 1	56·00 @ 59·00	—4 mos.
"	No. 2	54·00 @ 57·00	—4 mos.

HOT BLAST STONE COAL.

Missouri	No. 1 ℔ ton	$55·00 @	—4 mos.
"	Forge	44·00 @ 45·00	—4 mos.
Ohio	No. 1	54·00 @ 55·00	—4 mos.
"	Forge	41·00 @	—4 mos.
Scotch Pig,	No. 1	54·00 @ 55·00	—4 mos.

COLD BLAST CHARCOAL.

Hanging Rock	Car Wheel ℔ ton	$60·00 @ 65·00	—4 mos.
Missouri	" "	60·00 @ 62·00	—4 mos.
Kentucky	" "	60·00 @	—4 mos.
Tennessee	" "	60·00 @	—4 mos.
Georgia	" "	60·00 @ 62·00	—4 mos.
Alabama	" "	60·00 @ 62·00	—4 mos.
Machinery and Forge		58·00 @ 60·00	—4 mos.
Blooms		112·00 @ 116·00	—4 mos.

LOUISVILLE.

Mr. Geo. H. Hull, under date of Jan. 27, writes us as follows: The market opened dull, but has exhibited some signs of activity during the week, and closes with a firmer feeling. The usual time, four months, is allowed on quotations below:

HOT BLAST CHARCOAL.

No. 1	F'dry, from Hanging Rock Ores	$56·00 @ 57·00	
" 2	" " " "	53·00 @ 55·00	
" 1	Forge, " " "	45·00 @ 46·00	
" 1	F'dry, from Tennessee Ores	55·00 @ 56·00	
" 2	" " "	52·00 @ 54·00	
" 1	Forge, " " "	45·00 @ 46·00	
" 1	F'dry, from Alabama Ores	57·00 @ 58·00	
" 1	" " Iron Mountain Ores	59·00 @ 60·00	

HOT BLAST STONE COAL.

No. 1	F'dry, from Missouri Ores	55·00 @ 56·00	
" 2	" " "	52·00 @ 54·00	
" 1	Forge, " " "	44·00 @ 45·00	

COLD BLAST CHARCOAL.

Car Wheel	from Hanging Rock Ores	60·00 @ 65·00	
" "	Tennessee Ores	59·00 @ 60·00	
" "	Alabama Ores	60·00 @ 62·00	
" "	Georgia Ores	60·00 @ 62·00	
" "	Missouri Ores	58·00 @ 60·00	
" "	Kentucky	58·00 @ 60·00	

BALTIMORE.

Messrs. Wyeth & Brother, Iron and Steel merchants, corner of South Charles and Lombard streets, report us the following prices, under date of Jan. 28, 1873: Quotation figures rule firm, trade fairly active, with a good home demand, and supplies arriving a little more freely than for some time past. Stocks still continue much broken, and many desirable sizes hard to procure for prompt shipments.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ¾ to 1 thick	4¼c. to 4¾c. per lb.
1 to 4½ wide by 1½ to 2 thick	
Round and square, ordinary sizes, from ⅝ to 2 inclusive	4½c. to 4¾c. "
Hoop Iron, 1½ wide and upward	5¾ to 6 c. per lb.
Band Iron, from 1½ to 4 in. wide	5 to 5¼c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick	5½ to 5¾c. "
Norway Nail Rods	7¾c. to 8c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	17c.
Machinery Steel	12c. "
Cast Spring Steel	11c. "
Homogeneous Steel Plate	13c.
Perkins' Horse Shoes, per keg of 100 lbs	$6·75
" Mule Shoes " "	7 c.
Common Horse Nails, from 14c. to 18c per pound	
10 9 8 7 6	
Putnam Horse Nails	23 24 25 26 28c. per lb
R. R. Spikes	5¼ by 9-16 at 5¼c per lb

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals at the Port of New York, for the week ending January 28, 1872:

Hardware.

Biddle Hdw. Co.
Casks, 1
Brennen L. W. & Co.
Casks, 3
Boker Hermann & Co.
Mdse. pkgs., 25
Beam & Murray,
Cases, 1
Campbell H. P.
Casks, 3
Clark, Wilson & Co.
Mdse. pkgs., 4
Cockayne J. W.
Cutlery, casks, 1
Degraw, Aymer & Co.
Casks, 3
Chains, 7; cks., 1
Drexel, Morgan & Co.
Cases, 1
Fuller Bros.
Cutlery, casks, 2
Packages, 1
Hammers, cks., 1
Edge tools, cks., 4
Field A. & Co.
Chains, cks., 10
Casks, 4
Harmar Wm. & Co.
Mdse. pkgs., 6
Lawton & Lenox,
Wire ties, bales, 160
Wire, casks, 6
Laughland & Co.
Wire, pkgs., 3
Moore's J. P. Sons,
Guns, cases, 1
Parker J.
Casks, 2
Rogers J. C. & Co.
Nails, cks., 3
Rodman & Hepburn,
Files, casks, 1
Sawyer John,
Wire rope, coils, 4
Schuyler, Hartley & Graham,
Guns, cases, 5
Wiebusch F.
Chains, casks, 75
Order.
Casks, 7
Nails, cks., 1
Packages, 7

Iron.

Abeel Bros.
Bars, 2504
Bussing, Crocker & Co.
Pig, tons, 150
Cordova S. de
Scrap, bbls., 3; lbs., 10,681
Congreve Chas. & Son,
Rails, 1947
Darrell & Co.
Scrap, bbls., 79; cks, 8; pcs. 109; bdls, 2
Griswold J. A. & Co.
Pig, tons, 86
Holdane J. H. & Co.
Sheets, 522
Bundles, 38
Lang

to remain neutral. This result was reported to the meeting, at which, Mr. Kane, Secretary to the National Ironworkers Association, and Mr. Train, of Darlington, were present. Mr. Kane, in the course of his address, contended that the men in Wales ought to receive the same wages as in the North, rails being priced the same, instead of which the Welsh ironworkers were paid at a much lower rate. They had, however, not supported the trade union properly, and so had given the ironmasters a great advantage. The association would support the union men, but not those who were non unionists. Their condition was, he thought, so helpless that they ought not to have struck without making desperate efforts for reconciliation and arbitration. These arguments had their effect upon the men, and many doubts were openly expressed, implying that, somehow, there had been a leap in the dark. A committee of tradesmen were appointed for the purpose of obtaining another interview with the masters. This committee met on Monday and sanctioned a proposition that the masters should name a time to see the representatives of the men. The Forest of Dean colliers, I may mention, held a large mass meeting on Saturday night, and resolved to support there Welsh confreres by every means in their power.

The miners' strikes in Lanarkshire and Ayershire, Scotland, continue, and the men as well as their families are enduring no ordinary privations. Their funds are exhausted, they cannot obtain fuel for their own use, and in many instances the coal masters have issued warrants of ejectment from the houses in which they dwell. It should be mentioned that at a conference of miners delegates held at Glasgow on Monday, a resolution was passed expressing entire disapproval of the policy adopted by these miners, concluding with the advice that those who have been reduced by 1/ had better resume work at once. This is wholesome advice indeed, and ought to be accepted without loss of time, instead of doing which, however, the men have resorted to the grossest forms of intimidation possible. This is to be regretted on various grounds, and considerably weakens the cause of those who are implicated. In the Forest of Dean the enginemen and smiths are moving for an advance of wages on the standard of 5/ per day. The wages question has, fortunately for those concerned, been satisfactorily settled in South Staffordshire, the puddlers agreeing to receive 12/6 per ton for puddling for three months forward, unless a rise in the price of iron be declared in the meantime, in which case they would also demand an increase. In East Derbyshire the colliers are agitating for the eight hour system, with other alterations and amendments, and have been so far successful as to have induced the Clay Cross Company to accede to their request. Clay Cross employs several thousand men, and sends on an average pretty close upon 400,000 tons of coal to London yearly. At some other pits in the locality named the men are on strike. The Wolverhampton and Birmingham edge tool makers have now been on strike thirteen weeks, and are apparently fully resolved not to resume work unless the 10 per cent. be conceded. At Sheffield, the pen knife cutlers are moving for an advance of something like 10 per cent., which they propose shall take effect about April 1, and the saw grinders are wishful to obtain a better rate of payment, but as yet have taken no active steps in the matter. The silver workers of the same town are, as I stated a month ago, trying to obtain a concession of about 15 per cent. In addition to the disputes I have recorded above, the following exist: Carpenters, at Newport; printers, at Edinboro; horse-shoers, at Edinboro and Leith; plumbers, at Bradford; iron-stone miners, at Eston, near Middlesboro; builders, at Redditch and Kettering; weavers, at Barnsley; curriers, at Leeds; hosiers, at Hawick; bakers, at Falkirk, and bookbinders, at Belfast. These by no means exhaust the long list—my space would not allow me to carry out any such intention, even if I had the hardihood to entertain an idea so foolish. You may guess to what a pitch these labor struggles have attained, when I state that I have now before me a four-page weekly newspaper, containing 26 columns of matter and "ads," mostly relating to labor agitations, and entitled, "Out on Strike." The number of which I write is the fifth of the strange incubation, and, like its predecessors, dates from Edinboro, the classic and Athenian. The enterprise, no doubt, is in the hands of the printers on strike there, and is a novel idea, and one well worthy of the success—even if that be equivocal—which they claim for it. The unfortunate gas stokers, whose sole misfortune appears to be that they *were* gas stokers instead of mere ordinary artisans, are now undergoing their term of imprisonment, but their unjustifiably harsh and heavy sentence has excited almost universal condemnation. The trades unionists throughout the country—not to mention several powerful organs in the press—are moving in the matter, and it will not be a surprising matter to me if Mr. Secretary Bruce be called upon to reverse Mr. Justice Brett's decision. The trades unionists argue, and one would think very justly, that these men had just as much right to combine for their own protection or advancement as any other class of workmen, and that to sentence them to 12 months' imprisonment for an alleged conspiracy is a gross injustice, and one that ought not to have been inflicted. These multifarious disturbances of the labor market have had the effect of stirring up some of the miners in Durham to form a co-operative mining association, with the avowed intention of purchasing, leasing, and working mines in that county. A large public meeting was held at Chester-le-street, on Saturday night, in furtherance of this object, at which shares were allotted. Next week the Trades Union Congress opens at Leeds, with a programme which I subjoin for your edification in advance. Papers will be read on the following subjects: "The Inefficiency of our Present Factory Inspection;" "Agricultural Laborers;" "Criminal Law Amendment Act;" "Trade Societies; their necessity, objects and usefulness;" "Trades Councils, their necessity and utility;" "International Arbitration;" "A review of the past, present and future condition of the operative potters who work under the system of good from oven;" "The limitation of apprentices;" "Good from oven in the potteries;" "The advantages of amalgamated societies;" "The necessity for a thorough amalgamation on federal principles of every combination of laborers, whether urban or rural;" "Direct representation of labor in Parliament;" "The amalgamation of all trades on federal principles, in cases of strikes and lock-outs;" "Co-operation and industrial partnerships;" "The application of the law of weights and measures to factories and workshops;" "Trades unions, strikes, and productive co-operation;" "Trades unions from a national aspect." The following will be represented at the Council: Amalgamated Association of Miners; Power-loom Weavers, Stockport; Nut and Bolt Makers, Darlaston; Agricultural Laborers, Leamington; Boiler Makers and Iron Shipbuilders, Liverpool; Lincoln Agricultural Laborers' League; United Kingdom Society of Coachmakers; National Miners' Association; United Flat Ware Pressers, Stoke-on-Trent; Amalgamated Tailors, Manchester; Hollow Ware Pressers, Burslem; Amalgamated Carpenters and Joiners; Shipping Trades, Liverpool; United Flint Glass Makers of Great Britain and Ireland; Cotton Spinners, Preston; Iron Founders, England and Wales; Stonemasons, Brecon; Railway Spring Makers, Sheffield; Typographical Society, Edinburgh; Amalgamated Engineers; National Association of Rope Makers; Ironworkers, England and Wales; Colliery Enginemen, Bishop Auckland; Bit Forgers and Filers, Bloxwich; Carpenters and Joiners, London; Framework Knitters, Midland Counties; Hatters' Mutual Association; Typographical Association, Manchester; Cocoanut Matting Makers; Silver Lace Trades, Nottingham; Amalgamated Silk Twisters, Leek; Wood Turners, Cornholme; Boat Builders, North Shields; Stonemasons; West End Cabinet Makers, London; Alliance Cabinet Makers, London; Steam Engine Makers; Dyers, Manchester; Agricultural Laborers, Peterborough; East End French Polishers, London; Yorkshire Amalgamated Woolen Operatives. The following Leeds trades: G. U. Carpenters and Joiners, Cloth Dressers (new society), Willeyers and Fettlers, Typographical Society, Cloth Dressers (Provident), Tailors, Amalgamated Engineers (No. 5 branch), Pattern Makers, Iron Founders (south branch), Amalgamated Cordwainers (No. 2 section), Saddlers and Harness Makers, Bricklayers, Smiths, Painters, Plasterers, and from the following trades councils: Wigan, Nottingham Organized Trades, Bury, Liverpool, Sheffield, Leeds and District, Bradford and District, Nottingham Trades Union Association, Oldham, Bolton, Leicester, Glasgow, Maidstone, Manchester and Salford.

At the time of writing, all appearances point to a further steady increase in the price of iron. What with the labor troubles, already chronicled herein, and the price of fuel, the production has been surrounded by limitations and embarrassments. The natural result is that prices must, will and are now going up. Warrants at Glasgow are quoted at about 125/, and some good judges expect that they will reach 130/ within a week. Prices of the leading Scotch makes are almost stationary, no very large transactions having taken place during the past week, which has been, in the majority of cases, devoted to the annual operation of stock taking. At Wolverhampton, and throughout the West Midland district, pig iron is very firm, hot blast, all mine, being priced £6. 10/, and cold blast £7 per ton. Welsh quotations are all nominal, and must necessarily remain so until tranquility is restored. This may, or may not, soon ensue, seeing that the iron masters in Wales are by far the most wealthy makers in Great Britain, and they now allege that their profits having (owing to the abnormal state of things) become so limited they are not anxious to have so large an amount of capital and trouble expended for so trifling a return. In the Cleveland district pigs are firmer, and No. 3 reaches as high as 110/ per ton. Birmingham rates for marked bars are £12 to £12. 15/; sheets (single), £15 to £15. 10/, and hoops as stated a week or two since. The demand for rails continues very good, but some of the iron masters allege that they are crippled by long contracts, which are proving a dead loss to them in many instances. Some of them are now delivering rails at £9. 2/6 to £9. 10/, whilst current quotations range from £10. 10/ to £11. 10/. A good foreign demand exists for plates, and shipbuilding descriptions meet an improved inquiry. As an illustration of the briskness of the latter trade, I may mention that during 1872 Messrs. Humphreys & Pearson, of Hull, launched seven steamers, with a total of 7744 tons; lengthened three others, increasing their tonnage by 8350, and have engined four not built by them with 4585 horse-power. Gilbert & Cooper, of Hull, turned out 4561 tons, and Earle's Shipbuilding and Engineering Co., of Hull, had, a short time back, orders on hand for 25,000 tons. These are a few of the Hull firms, and I do not need to remind you that the Humber is by no means equal to either the Clyde or the Tyne in its shipbuilding capabilities. The Clyde alone turned out 224,000 tons during last year, despite the strikes and other difficulties by which it was hampered. Copper having gone up, the Birmingham manufacturers of copper and brass sheets, tubing, etc., have put up brass ½d. per pound, copper ¾d., and have raised pin wire £5 per ton. All the trades peculiar to Birmingham are well employed. Copper is £5 to £10 higher than last week. Bars are £90; Australian, £96. 10/; Wallaroo, £96; and English, £96. On the 1st inst. the total stocks of copper in this country or afloat and under charter was 42,455 tons, as against 30,700 tons last year. At Redruth last week 1510 tons of copper ore realized an average of £4. 16/ per ton. Of fine copper, 98 tons 17 cwt.; average produce, 6½; average standard, £115. 6/. Tin is also advancing. The Cornish smelters advanced standards of tin ore last week £3 all round. Straits have gone up to £142 to £143, and English blocks command £145. Tin plates are also higher, the demand for them being steady and well sustained, your side of the Atlantic taking no small quantity. Silesian Spelter is very firm at £23. 10/ to £24. 10/, and at outports £23. 15/ to £23. 17 6. The stock of this metal in London on December 31st was not more than about 460 tons.

Since my last writing the general condition of the Sheffield steel trade has been inactive, no great amount of work being in hand in consequence of the resumption of work after the holidays having only taken place (and that not universally) on January 6th. The Bessemer steel houses are very busy, and most of the firms of any note have plenty to do, but do not see any way whereby they can indubitably do a good trade with the certainty of inadequate return. On New Year's day the South Yorkshire and Durham coal owners put up coals 1/ to 1/6 per ton, so that if the Steel Manufacturers Association really possesses any vitality, it will speedily demonstrate itself. A few days ago a Sheffield firm received a telegram from New York apprising them that your appraisers had declined to put best cast steel up so as to render it liable to extra duty. This piece of intelligence has been gladly, not to say jubilantly, received by the trade, an impression produced in a less degree by a rumor that one of your leading cutlery firms is in difficulties—of a financial nature. However, tell this not in Gath, nor speak of it in Askelon—unless it be true.

Circumstances would seem to point to a favorable condition of the trade of this town for some months yet to come. Two of the Sheffield newspapers have spoiled a good deal of paper in demonstrating various complicated, and always unsatisfactory, trade problems during the last week or two, in articles which would, I have no doubt, be of some interest did the writer know anything whatever of trade matters, and if there were less of what Shakespeare somewhat forcibly terms "iteration"—"iteration." The cutlery trades are fairly prosperous, but should the workmen in any one branch insist upon an advance of wages, the profits of the employers are not so large but that they can afford to lock out the men. The penknife cutlers have already made a move, and have obtained 5 per cent. from George Wostenholm & Sons, with a promise of another 5 shortly, and the edge tool grinders have been met with a slight concession. *En passant*, it may be stated that edge tool makers, saw manufacturers and makers of all kinds of machinery never encountered so successful a year as that just ended, and have so far plenty of orders on hand to suffice for the first portion of 1873. As I conclude my letter, I learn that a goodly proportion of the miners who have been on strike in the Motherwell district (Scotland), have decided to resume work on the masters' terms, viz., 9 per day; but those who are offered 8 only are determined to stand out. A couple of years ago these men were thankful to obtain work at 5 and 6 per diem. Do I need to remind your readers of the old proverb—"Set so and so on horseback, etc., etc."?

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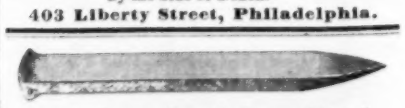

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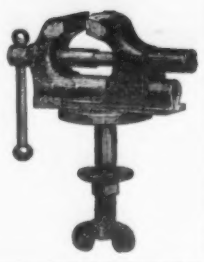

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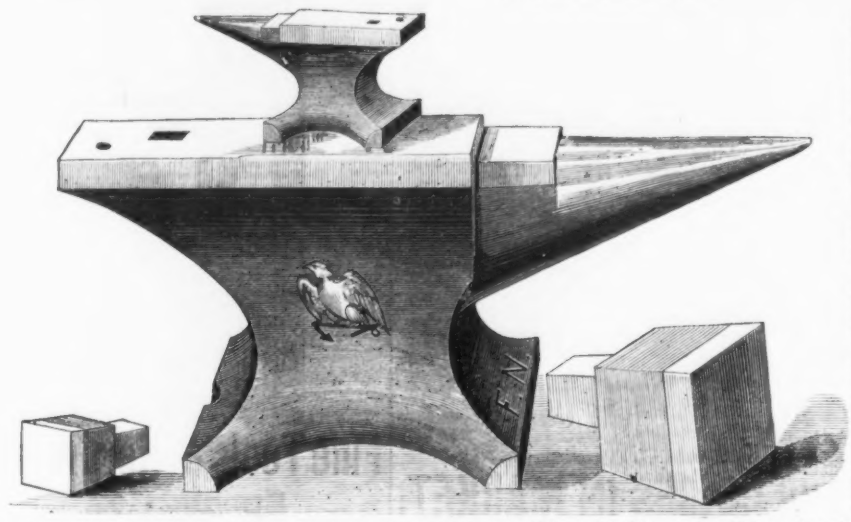

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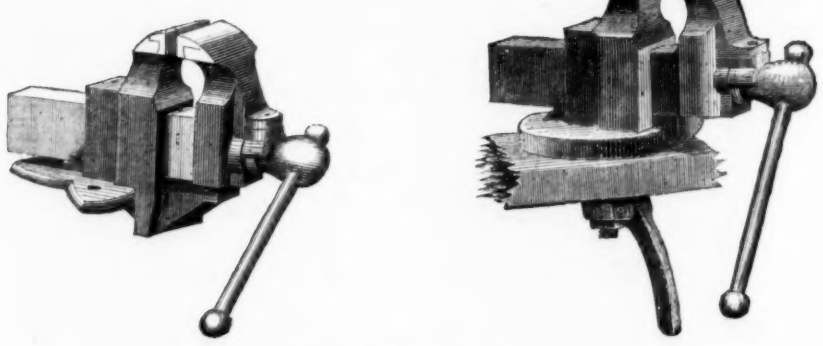

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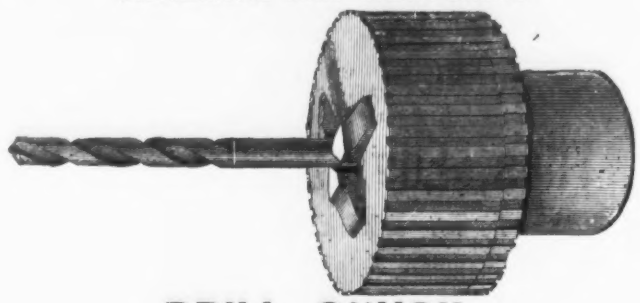

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☞ All the motions in this Chuck are positive. It has no spring or complicated mechanism to break or get out of order. The Large Chuck is on the same principle precisely, and has an arrangement of the jaws for chucking small articles, for turning, boring, &c. The Small Chuck holds drills from ⅝ shank down. The Large, from ¾ down to 5-16. **Price—Small, $6·00. Large, 8·00.**

The Taylor Manufacturing Company, New Britain Conn.
Hardware Manufacturers. Send for Catalogue.

BUY THE BEST!!

Champion Ice Cream Freezers

With Condon's Patent Self Adjusting SCRAPER AND Ice Agitator.

CRANK,
3, 4, 6, 8 quart.

GEARED
3, 4, 6, 8, 10, 12 quar
16 20, 24, 32, 40 quar

RECOMMENDATION.

Messrs. SIDNEY SHEPARD & CO., Buffalo, N. Y.

Gentlemen: In reply to your inquiry, "How do you like our *Champion Freezer*?" would say, I hav tried all the different kinds of freezers in the market, but found none to answer my vants, consequently had one made at an expense of over two hundred dollars, that suits me. Your *Champion* embraces s the good qualities contained in my own, and I consider it the best I have seen. Yours, respectfully,

BUFFALO, Sept. 5th, 1872. J. MAYER, CONFECTIONER. No. 386 Main Street.

Samples, Illustrated Catalogue and Prices of our own Manufactures supplied on application.

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Foreign Hardware Commission Merchants.

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PLATE AND HOOK HINGES,

Cold Pressed Nuts and Washers, Felloe Clips, &c.

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" W. & S. BUTCHER'S Files, Edge Tools and Razors.
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We always have on hand a full assortment of

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Wrought Butts, Strap and T Hinges.
Bronzed Butts and Bolts.
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Wrought Chest Handles, Washers, Flush Bolts, &c

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HENSHAW'S PATENT HARNESS SNAPS,

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PATENT GAFF TOP-SAIL SELF-MOUSING SHIP HOOKS,

Plow, Fillettster & Dado Stops of all kinds, Set Screws for Plows, Bench Plane Starts, &c.
Patent Washer Cutters. Plane Iron Screws to order of any size.

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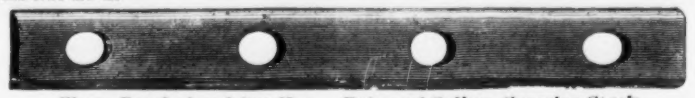
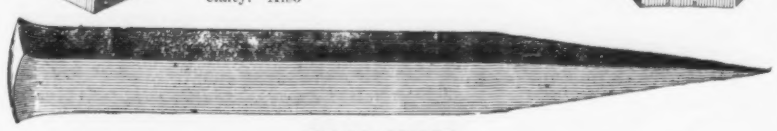
Manufacture Bar, Angle, and Plate Iron, Spikes and Nails, Railroad Fish Plates, Bolt and Spikes, Railroad and Contractors' Supplies in general, Bolt Blanks, Coach Screws "Adams Nut Lock."



Plates Punched and Cut Hot. Bolts and Spikes, Superior Stock

COLD PUNCHED NUTS.

All sizes constantly on hand. We use the best Lake Superior Iron, and make a uniform handsome nut. Orders solicited. We make washers a specialty. Also



DRAG TEETH.

Forged points and beveled heads. A desirable article. Orders for early spring delivery solicited.

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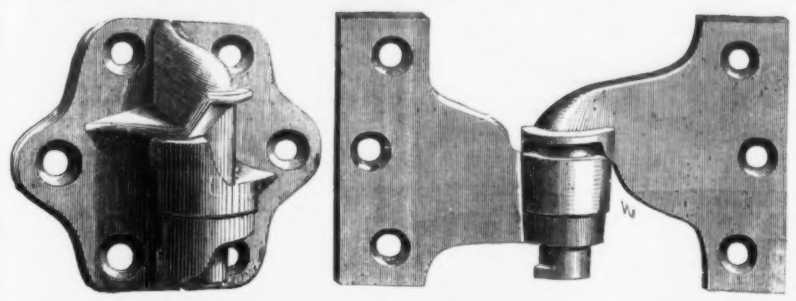

Surface. *Patented Nov. 3, 1868.* *Mortise.*

THE STRONGEST BLIND HINGES IN MARKET.

Upper and Lower Hinges are alike, locking the top and bottom of the Blinds.

On long Blinds three or more may be used without mismatching sets, and all will fasten. They cannot be broken or closed by the wind.

☞ We would call the attention of the trade to our **Improved Revisible Self-Closing Gate Hinges.** Also our **Improved Axle Pulleys, both Iron and Boxwood Wheel, Sash Locks, Sash Bolts, &c.**

CLARK & CO., Buffalo, N. Y.

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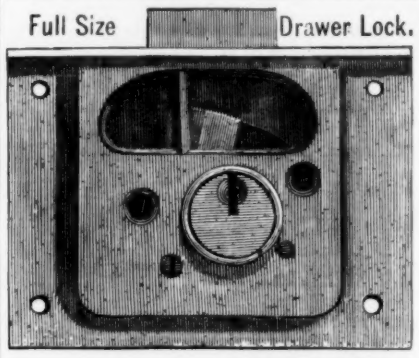

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SARGENT & GREENLEAF,

Manufacturers of

PAD LOCKS.

Drawer, Trunk, House, Store Door, and other Locks,

NIGHT LATCHES, &c, with Small Flat Keys

ALSO,

BANK and SAFE LOCKS.

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YALE LOCK MFG. CO.

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FINE FLAT-KEYED LOCKS for all Purposes

RIM and MORTISE STORE DOOR LOCKS,

Heavy Front Door and Vestibule Locks.

Rim and Mortise Night Latches,

CLOSET, CHEST, DRAWER, DESK and PADLOCKS,

Post Office Lock Boxes and Prison Locks,

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The Yale Lock Manufacturing Co.,

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The Best TUMBLER LOCK Ever Made.

New Pattern Key.
No. 500 Yale Lock.

Samples sent on Application

COFFIN TRIMMINGS,

MANUFACTURED BY

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LARGEST STOCK AND BEST ASSORTMENT IN THE UNITED STATES OF

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Also, BEST QUALITY SOCKET FRAMING CHISELS.

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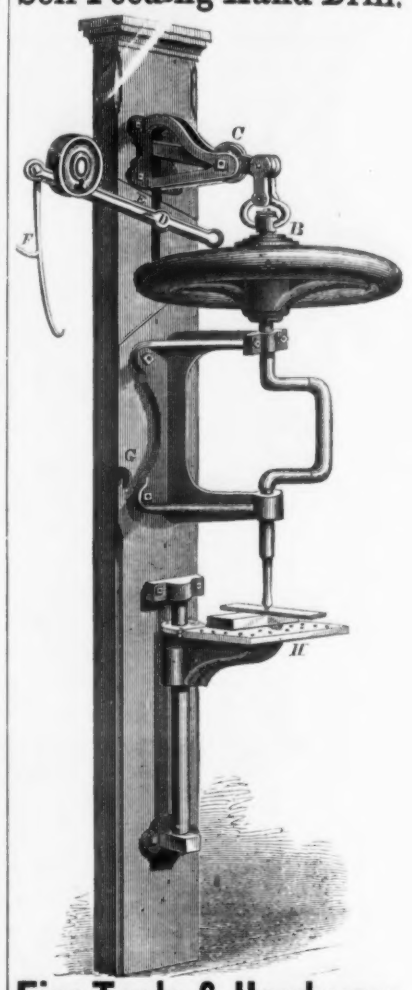
BIDDLE MANU'FG CO.

PATENT

Self Feeding Hand Drill.



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Tinners' Tools and Machines,

COFFEE MILLS,

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Steelyards, Dividers, Compasses,

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WROUGHT and MALLEABLE.

STEEL and IRON SQUARES.

And a large variety of

General Hardware.

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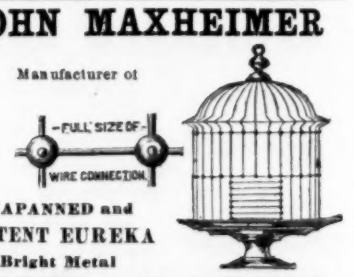

JAPANNED and PATENT EUREKA Bright Metal

BIRD CAGES,

Nos. 247 & 249 Pearl Street, NEW YORK.

JOSEPH CHURCHYARD,

Proprietor of the

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Clinton St., bet. Adams and Watson Sts.,

BUFFALO, N. Y.

Keeps on hand (or makes to order)

DOORS, SASH, MOULDINGS,

Shutters, Stairs, Blinds, Flooring, Siding, in hard and soft woods. Estimates given (responsible persons) for any variety of wood work, either plain or ornate Those in want of any thing in this line are invited to drop him a line and ascertain at cost price he can furnish it.

New York Wholesale Prices, January 29, 1873.

HARDWARE.

Anvils.

Solid Cast Steel ₩ lb 14c
Peter Wright's..₩ lb gold 12½c; over 250 lbs. 13c. gold
Armitage's Mouse Hole gold 12c
Wilkinson's ₩ lb gold 11½c
Eagle Anvil Co., ₩ lb 11 cts dis 15 @ 15&5 %

Apple Parers.

Turn Table, Lightning, Reading, Conqueror } $8·50 per dozen.
Union per doz. $8 00 @ 8 50
Bay State, Paring Coring & Slicing 13 50 @ 15 00
Skeleton " " " 8 00
Bay State Peach Parer 11 00 @ 11 50
Lightning Peach Parer 11 00 @ 11 50
Peach Stoner & Halver 6 00

Augers and Bits.

Snell Mfg. Co dis 15 %
Russell Jennings dis 10 %
Ives' dis 25 %
" Hollow Augers dis 30 %
" Expansive " dis 30 %
" Expansive Bits dis 25 %
Andrews' Bitts dis 20 %
Cook's Patent Augers dis 40 %
" " Bits dis 25&10 %
Shepardson's Double Cut Bits dis 20 %
Griswold's Patent dis 20 %
Cast Steel Cut Augers new list dis 25&10 %
Cast Steel Auger Bits dis 25&10 %
Long Augers new list dis 30 %
Bonney's Patent Hollow $48 per doz.—dis 25 %
Stearns' Patent Hollow $48 per doz.—dis 30 %

Axes.

Blood's $12 50 @ 14 00
Hunt's ₩ doz 15 00 @ 17 50 net @ dis 5 %
Collins' ₩ doz 12 00 @ 16 00 net @ dis 5 %
Hurd's ₩ doz 12 50 @ 13 50
Simmons' ₩ doz 12 00 @ 13 00
Morris' ₩ doz 12 50 @ 13 50
Red Jacket ₩ doz 12 00 @ 12 50
Mann's ₩ doz 13 00 @ 14 50
Powell Tool Co., "Peerless" ₩ doz 13 00 @ 14 50

Balances.

Chatillon's, Frary's, Morton's } new list, dis 15 %

Bands.

Plated add 10; dis 5 %
Iron dis 5 %
Brass....(Plated list) dis 5 %
Oroide add 25; dis 5 %

Bells.

Hand, Light Brass dis 50&10 %
White Metal dis 45&10 %
Globe dis 20 %
Abbe's dis 10 & 10 %
Taylor's Patent Door net
Western Gong net
Brook's Crank net list.
" Pull dis 15 %
Hart Mfg. Co., Crank and Pull net list
Cow—Common Wrought new list dis 33⅓ %
Western new list dis 33⅓ %
Kentucky "Star" new list dis 10 @ 10 %
Dodge's Genuine Kentucky new list dis 25 %
Yaw.s Genuine net

Bellows.

Blacksmiths' dis 10 %
Moulders' dis 10 %

Blind Fasteners.

Van Sand's ₩ gross $14 00
Washburn's Patent ₩ gross 14 00
Merriman's add 35 @ 40%

Blind Staples.

Boardman's Patent, ⅜ in. and larger ₩ lb 37½c
" ⅜ in. " 42 c

Bolts.

Cast Iron Barrel, Shutter, &c. old list dis 30&10 %
Wrought Iron Barrel net
" " Square dis 10&10 %
Carriage and Tire, Common dis 60&5 %
Carriage and Tire, Norway Iron dis 40 %
Eagle, Philadelphia dis 40 %
Philadelphia Pattern, P. S. & W dis 50&5 %
Carriage and Tire, R. B. & W dis 45&5 %
Plow, R. B. & W dis 30 %
Stove R. B. & W dis 10 %
Union Nut Co.
Machine dis 10 @ 15 %

Boring Machines.

Kellogg's dis 10 @ 15 %
Snell Mfg. Co., Rice's Patent dis 15 %
Snell Mfg. Co., Regular dis 15 %
Douglas Mfg. Co dis 20 %
Hovey's Angle $6 00 @ 6 25
Hovey's Upright 4 25 @ 4 50
Morticing Machines, each $18 00

Braces.

Barber's Patent dis 30&10 %
Wilson Mfg. Co net @ add 5 %
Spofford's Patent dis 37½ %
Noble's Patent dis 33⅓ %
Bartholomew's dis 10 %
Bartholomew's Patent dis 25 %

Bung Hole Borers.

Common and Ring dis 20 %
Enterprise Mfg. Co dis 20 %
Ives' Tap Borers dis 20 %

Butchers' Cleavers.

Bradley's dis 15 %
Beatty's new list dis 10 %

2	3	4	5	6	7	8	9
$19·00	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50	$40·00

Hart Mfg. Co dis 15 %

0	1	2	3	4	5	6
$13·00	$16·00	$18·00	$20·00	$23·00	$26·00	$30·00

Butts.

Wrought Brass new list dis 25 %
Cast Fast Joint Narrow dis 15 %
" " " Broad dis 30 %
Cast Loose Joint dis 40 %
" " " Mayer dis 30 %
" " " Parliament dis 30 %
Loose Pin Butts, Plain dis 25 %
" " Japanned dis 25 %
" " National dis 40 %
Wrought Fast Joint, Narrow net
Wrought Broad dis 15 %
" Loose dis 15 %
Wrought Table and Back Flaps net
Palmer Blind Butts dis 30&10 %
Nicholson Blind Butts dis 30 %
Parker's Blind Butts dis 30 %
Clark's Blind Butts dis 30 %
Seymour's dis 30 %
Shepard's dis 30 %
Garretson's dis 40 %
Standard dis 30 %
Union Mfg. Co.'s Drilled Fast Narrow new list dis 25 %
" " " " " Broad dis 25 %
" " " " Loose dis 35 %
Whitney & Wait's Bronze Metal dis 20 %

Caps—Percussion per 1000.

G. D. 40c
Ely's E. B. 1-4s, 67½c; 1-10s, 75c, gold
" Double Waterp'f, 1-4s, $1·57½; 1-10s, $1·65c, gold
Colt's 1-4s, 82½c; 1-10s, 90c, gold

Cartridges.

Metallic dis 45 %

Cards.

Horse and Curry dis 20&10 %
Cotton and Wool dis 10 %

Casters.

Iron and Wood Wheel Plate new list dis 20&10 %
Brass Wheel Plate new list dis 20&10 %
Porcelain Wheel Plate new list dis 20&10 %

Chain.—By the Cask.

English Coil net gold

₩ lb.	13¼	10¼	9½	9c	8¾	8½
	3-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2 ₩ pair, gold, 65c
Trace, 7-10-2 ₩ pair, gold, 70c
Galvanized Pump Chain ₩ lb 14c
German Halter Chain new list, gold, dis 10 %
German Coil new list, gold, dis 10 %
Jack Chain, Iron dis 35 @ 40 %
" " Brass dis 20 @ 25 %

Chalk.

White ₩ gross, 50c
Red ₩ gross, 75c
Blue ₩ gross, 85c
Crayons ₩ gross, 11c

Chisels.

Socket Firmers dis 60 %
Socket Framing dis 60 %
Socket Corner dis 60 %
} Cash in 30 days an extra 5 %
Tanged Firmers dis 40 @ 40&10 %
Butcher's $5 00 to £ gold—new list
Spear & Jackson's $5 00 to £ gold—new list

Clips, Axle.

Norway or Best dis 20 @ 30 %
Superior dis 40&5 %

Coal Shovels.

Iron Handled ₩ doz, $ 85 @ 1 25
Wooden Handled ₩ doz, 1 00 @ 2 00

Coal Hods.

Smith, Burns & Co.. dis 25 %

No.	14	15	16	17	18	
Japanned,	$9·00	9·75	10·50	12·00	13·50	per doz
Galvanized,	13·00	14·50	15·50	17·50	19·50	"

Cocks.

Brass Racking dis 10&10 %
Lock & Globe dis 10 %

Coffee Mills.

Common Board and Box dis 15 %
Better Grades dis 10 %
Increase Wilson's new list dis 10 %
French Steel dis 10 @ 20 %
"Champion" dis 20 %

Compasses and Dividers.

Bemis dis 15 @ 20&5 %
Excelsior dis 30 %
Peck, Stow & Wilcox dis 20 %

Coopers' Tools.

Bradley's dis 15 @ 20 %

Corn Knives and Cutters.

Bradley's list net

Curry Combs.

Hotchkiss' and Kellogg's, Iron and Brass dis 10 %
Fitch's dis 20 %
Ruggles' dis 15 @ 20 %
Rubber ₩ doz, $9 00—dis 10 %

Curtain Pins.

Silvered Glass dis 40&10 %

Cutlery.

American Table
American Pocket dis 15 %

Door Springs.

Torrey's Patent $7 50 ₩ doz—dis 20&10 %
J. Palmer ₩ doz $5 50

Drawing Knives.

dis 60 %—Cash in 30 days an extra 5 %
Bradley's dis 25 %

Drills.

Morse's Bit Stock Drills dis 10 @ 15 %
Ingersoll's Ratchet (Wrought Iron) dis 25 %
No. 1, 12-in., $6 50 each; No. 2, 16-in., $8 75 each; No. 3, 20-in., $11 00 each.

Egg Beaters.

Monroe's ₩ doz net $8 25 @ 8 50
Ashley's ₩ doz net 2 25 @ 3 00
Earle's Patent ₩ doz net 5 50 @ 6 00
Pratt's Acrating dis 10 %
Dover ₩ doz net $6 00

Emery.

Genuine Chester—Regular Nos. ₩ lb 8c
" Flour and FF ₩ lb 5c
Washington Mills—Regular Nos. ₩ lb 8c
" Flour. ₩ lb 5c

Enameled and Tinned Ware.

Kettles dis 10 %
Sauce Pans, Glue Pots, &c dis 5 %

Faucets.

Cork Lined, Wood dis 50 @ 50&10 %
Fenn's dis 50 %
" Cork Stops dis 40 %
Star dis 57½ %
Frary's Patent Petroleum dis 10 & 10 %
Taylor's Pattern Petroleum dis 20&10 %
Wood and Metallic" dis 40 %

Files.

American Best $5 00 to £ net
Nicholson—Mill 5 00 to £ net
" Others 5 00 to £ net
" Tapers (single cut) 5 00 to £ net
J. & Riley Carr's, 5 50 to £ gold
Stubs' 8 00 @ 8 25 to £ gold
Butcher's 5 50 to £ gold
Spear & Jackson's 5 50 to £ gold
Hargreaves, Smith & Co.'s 4 75 to £ gold
Jowitt's 5 25 to £ gold
"Western" 5 00 to £ net
W. K. & C. Peace's "Imperial" 5 25 to £ gold
R. Ibbotson 5 00 to £ gold
Beam & Murray, "Cyclops" 4 85 to £ gold
Fisher,s 4 75 to £ gold
Goodlad's 4 00 to £ gold
Moss & Gamble 5 25 @ 5 50 to £ gold

Fluting Machines.

Acme $7 00 each net
Cole 5 75 each net
Peerless, No. 2 4 00 each net
Manvil, No. 2 7 00 each net
Knox, with 4-inch Rolls 5 00 each net
" " 6 " " 6 00 each net
O. K. 6 50 each net
Excelsior, No. 1 4 75 each net
" " 2 6 50 each net
Diamond 7 50 each net
Climax, 7-inch Rolls 8 00 each net
" 4½ " " 6 50 each net
Empire 4 00 each net
Eureka, No. 1, 7-inch Roll 8 00 each net
" No. 2, 5-inch Roll 6 00 each net
K. F. M., 4½ inch Roll 5 50 each net
" 6 inch Roll 6 00 each net
Carpenter's Self-Heating 13 50 each net
Fairy, Self Heater 10 00 each net
National, 5-inch Rolls 5 00 each net
Myer's Fashion Fluter, 4½ inch Rolls 3 00 each net

Fry Pans.

Tinned— dis 20 %

₩ doz	$3·00	3·25	3·62	4·00	4·50	5·00	5·50	6·00	7·50
No.	0	1	2	3	4	5	6	7	8

Peck, Stow & Wilcox dis 20 %
Smith, Burns & Co., "Excelsior" Polished dis 20 %

$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00	per doz.
No. 1	2	3	4	5	6	7	8.	

Hammers.

Maydole's new list net
Cheney's new list net
Verree dis 5 %
Yerks & Plumb new advanced list dis 5 @ 10 %

Handles.

Hammer and Hatchet dis 10 %
Quakertown, Axe, Pick and Sledge dis 10 %
" Hammer and Hatchet net

Harness Snaps.

Judd's dis 30 %
Fitch's dis 30 %

Hatchets.

Isaiah Blood dis 10 %
Shingling, Nos. 1 2 3 ₩ doz $7 50 8 00 8 50
Claw, " 1 2 3 ₩ doz 8 50 9 00 9 50
Lathing, " 1 2 3 ₩ doz 7 50 8 00 8 50
Hunt's net
Shingling, Nos. 1 2 3 ₩ doz $7 25 8 00 8 75
Claw, " 1 2 3 ₩ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ₩ doz 7 50 8 25 9 00
Hurd's dis 20 %
Shingling, Nos. 1 2 3 ₩ doz $8 00 8 50 9 00
Claw, " 1 2 3 ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ₩ doz 8 00 8 50 9 00
Newark Edge Tool Co's dis 25 %
Shingling, Nos. 1 2 3 ₩ doz $6 50 7 00 7 50
Claw, " 1 2 3 ₩ doz 7 25 7 75 8 25
Lathing, " 1 2 3 ₩ doz 6 50 7 00 7 50
Yerks & Plumb dis 10 %
Shingling, Nos. 1 2 3 ₩ doz 7 00 7 50 8 00
Claw, " 1 2 3 ₩ doz 7 50 8 00 8 50
Lathing, " 1 2 3 ₩ doz 7 00 7 50 8 00
Simmon's dis 10 @ 15 %
Shingling, Nos. 0 1 2 3 ₩ doz 7 50 8 00 8 50 9 00
Claw, " 1 2 3 ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ₩ doz 8 00 8 50 9 00
Broad, " 1 2 3 ₩ doz 9 00 10 00 12 00
" " 4 5 6 ₩ doz 14 00 16 00 18 00
" " 7 8 ₩ doz 20 00 22 00
J. P. Verree & Co dis 5 %
Shingling, Nos. 1, 2, 3 ₩ doz $7 00 7 50 8 00
Claw, " 1, 2, 3 ₩ doz 7 50 8 00 8 50
Lathing, " 1, 2, 3 ₩ doz 7 00 7 50 8 00

Hinges.

Wrought Strap and T net
Providence Plate 6 & 8 in. list 11c; over 8 in. " 9½c dis 5 %

Hoes

Solid Shank, C. S ₩ doz $8 00—dis 25
Socket, C. S ₩ doz 9 00—dis 25
Riveted Eye ₩ doz 5 00—dis 25
Planters'—Winsted add 10
Scovill add 33⅓
Scovill Pattern (Winsted) add 20

Hooks.

Belt dis 50 %
Bench ₩ doz net $5 00 @ 8 50
Wardrobe, Japanned new list dis 10&10 %
Hat and Coat " new list dis 10&10 %
Wrought Staples and Hooks and Staples dis 60 %
Wrought Hasps and Staples and Hasps, Hooks and Staples dis 60 %
Screw Hooks and Eyes, revised list dis 60 %

Horse Nails.

Putnam's.

No.	5	6	7	8	9	10
	32c	28c	26c	25c	24c	23c

In lots 1000 lbs. dis. 5 %.
Ausable.

No.	5	6	7	8	9	10
	30c	27c	25c	24c	23c	22c

In lots of 1000 lbs. 5% discount.
Brundage.

No.	5	6	7	8	9	10
	29	26c	24c	23c	22c	21c

In lots of 500 lbs., dis 5 %
American Pressed.

No.	5	6	7	8	9	10
	22c	20c	20c	20c	20c	20c

Perkins Finished, (ready to drive).

No.	5	6	7	8	9	10
	29	26	24	23	22	21c

Buffalo Forged.

No.	6	7	8	9	10
	30c	28c	27c	26c	25c

In lots of 1000 lbs. less 1c. per lb.; lots of 5000 lbs. less 2c. per lb.
Globe (Pointed and Polished).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished).

No.	5	6	7	8	9	10
	30c	27c	25c	24c	23c	22c

In lots of 1000 lbs., dis 5 %.
Vulcan.

No.	5	6	7	8	9	10
	33c	30c	28c	27c	26c	25c

In lots of 500 lbs., 5 % discount.
" 1000 lbs., 7½ % discount.
New London Horse Nails.

No.	6	7	8	9	10
Great Western	27c	25c	24c	23c	22c
WB.	29c	27c	26c	25c	24c

In lots of 1000 lbs., dis. 5 %.
Star Brand ₩ lb 16c
Morgan 16c

Horse Shoes.

Burden ₩ keg, $6 85
R. I. Horse Shoe Co., Perkins' Pattern ₩ keg, 6 85
" " R. I. Pattern ₩ keg, 7 35
Mule Shoes ₩ keg, 7 85

Kettles.

Enameled dis 10 %
Brass ₩ lb 55c
In lots of 500 lbs ₩ lb net 50c

Knives.

Butcher and Shoe, "Ames" dis 15 %
Hay and Straw, "Wadsworth's" dis 15 %

Knobs.

Mineral and Porcelain, Trenton Lock Co } list June 8th, dis 25 %
Mallory, Wheeler & Co new list dis 40&2 %
Base—Common net
" Plush Tip dis 10 %
Elastic End reduced list..dis 10&10 %

Lanterns.

Brady's Patent dis 10 %
Ætna dis 10 %
Yankee dis 10 %
De Beque dis 10 %

Locks and Latches.

Russell & Erwin Mfg. Co., Norwalk Lock Co., Branford Lock Co, Parker & Whipple, Nashua Lock Co., Trenton Lock Co } List of June 8th, Dis. 25 %
Mallory, Wheeler & Co revised list, dis 40&2 %
Pad Locks, (Mallory, Wheeler & Co), new list dis 40 %
Pad Locks, (R. & E. Mfg. Co). Revised list Sept. 10th, dis 40&2 %
Cabinet—Eagle dis 25 %
Cabinet—Gaylord dis 25 %
Trunk dis 10 %
Continental dis 15 %
Shepardsons dis 20 %

Meat Cutters.

Dixon's (P. S. & W) dis 5 %

No.	1	2	3	4
₩ doz.	$14 00	$17 00	$19 00	$30 00

Hales' dis 10 %

No.	11	12	13
₩ doz.	$27 00	$33 00	$42 00

Perry's Champion (P. S. & W) dis 5 %

No.	200	300	400
₩ doz.	$22 00	$27 00	$40 00

Woodruff's (P. S. & W) dis 5 %

No.	100	150
₩ doz.	$15 00	$18 00

American dis 25 @ 25&5 %

No.	1	2	2½	3	4	5
Each	$6 00	$9 00	$14 00	$15 00	$30 00	$75 00

Molasses Gates.

Stebbins' Pattern dis 50&10 %
Tinned ends dis 40&10 %
Weed's Patent Self-Boring dis 15 %
" without Auger Bit dis 40 @ 50 %
Patent Self-Measuring per doz $42 00—dis 20 %

Mouse Traps.

Wood Choker 22 @ 24c ₩ doz holes

Nails.

10d Cut (Standard) ₩ keg $5 00

Nuts and Washers.

3c off list

Oil Stones.

Washita No. 1 ₩ lb 22c @ 25c
Washita Slips ₩ lb 44c @ 50c
Hindostan ₩ lb 6c net
Hindostan Slips ₩ lb 10c net

Oilers.

Olmsted's dis 25&10 %
Broughton's dis 25&5 %
Common Zinc, Brass and Copper dis 20 %

Picks.

Washoe R. R. Nos. 0 1 3 3 4 5

per doz.	$14·00	15·00	16·00	17·00	18·00
Washoe Coal, "	$8 50	9·00	10·00	11·00	13·00	15·00

Picture Nails and Knobs.

Richards' Patent dis 40 @ 40&10 %

Planes.

Auburn Bench and Fancy dis 15 %
Bailey's Patent Adjustable dis 15&10 %
Howland's Bench and Fancy dis 15 %
Chapin's " " dis 15 %
Chapin's, 2d quality dis 15&5 %
Sandusky Tool Co. dis 15 %
Ogontz" dis 15&5 %
Plane Irons list net
" " Butcher's $5 00 to £ gold—new list
" "Spear & Jackson's $5 00 to £ gold—new list
" " Sandusky Tool Co list net

Pumps.

Douglas Cistern, etc new list dis 25 %
" S. & F. new list dis 20 %

Rakes.

Cast Steel dis 25

$8 00	$9 00	$10 00	$11 00
8	10	12	14 teeth.

Razor Straps.

Genuine Emerson (B. F. Badger) dis 33⅓ %
Hunt's dis 25&10 %
Chapman dis 10 @ 15 %

Rivets.

Iron and Tinned dis 25 %
Copper Rivets and Burrs net @ dis 10 %

Rods.

Stair new list dis 25 %
American Patent dis 25 %

Rope. Manufacturers' List.

Manila. ½ inch and larger ₩ lb 18c
" ⅜ inch ₩ lb 18½c
" ¼ & 5-16 inch ₩ lb 19c
" Lath Yarn ₩ lb 19c
" Hay Rope ₩ lb 18½c
Jute ₩ lb 12c
Sisal ½ inch and larger, ₩ lb 16c
" ⅜ inch ₩ lb 16½c
" ¼ & 5-16 inch ₩ lb 17c

Rules.

Boxwood and Ivory dis 50&10 %

Sad Irons.

₩ lb 5½ @ 6c
Myer's Hat and Toilet, with stand per doz $7 00

Sand Paper—dis 7½ @ 10 %

Beader & Adamson's (Flint) 00 to 1½ $4 50 ₩ ream
" " " 2, 2½ & 3 5 00 "
Assorted 4 50 "
Star ₩ ream $3 50
Emery ₩ ream $7 00 @ 12 00

Sash Locks.

Clark's dis 25 @ 30 %
Ferguson's dis 20 @ 25 %
Champion per gross $13 00 @ $15 00
Norwich dis 15 %

Sash Weights.

Solid Eyes ₩ lb 3¼c

Sausage Fillers.

Perry's (P. S. & W) dis 5 %

No	1	0
₩ doz	$15 00	$21 00

Saw Rods.

list net

Saws.

Spear & Jackson's $4 50 to £ gold
John Spear $2 60 to £ gold
Am. Saw Co new list
Inserted Tooth dis 10 %
All else dis 12½ %
Disston's Cross Cut, Circular and Mill dis 12½ %
Hand, Panel, Back, &c dis 7½ %
Butcher Bow Saws, Butcher Saw Blades, Hack Saw Blades dis 12½ %
H. W. Peace's Circulars dis 10 %
Other kinds dis 10 %
Wm. McNiece's Hand, Cross Cut and Circular new list dis 10 %
Lightning new list..dis 20&12½ %

Scales.

Fairbanks' new list..dis 10 @ 20
Howe's dis 15&5
Shattuck's Counter and Union dis 15 %
National Platform dis 25
Eureka dis 25
Scale Beams dis 20
No. 1 360 to 1200 lbs. 90c. ₩ cw
No. 2 " " 75c ₩ cw

Screws.

American and National Screw Cos.
Iron revised list dis 50
Round Head Iron dis 40
Brass dis 40 %
Round Head Silver Capped new list dis 20 %
Patent Gimlet Point Coach and Hand Rail..dis 10 %

Scythes.

Blood's German Steel, Grass ₩ doz $10 00
" Cast " " ₩ doz 11 00
" Silver " " ₩ doz 12 00
" German " Grain ₩ doz 14 00
" Cast " " ₩ doz 15 00
" Red Rover 13 50
" Young America 10 50
" Silver Clipper 12 62
Johnson's German Steel, Grass ₩ doz 9 25
" Cast " " ₩ doz 10 50
" German " Grain ₩ doz 12 00

Shears.

Cast Steel dis 60 @ 60&5 %
Seymour's
Conn. Cutlery Co., new brand dis 60

Shovels and Spades.

Ames list July 1, '70, list net @ dis 2½ %
Rowland list Feb. 17, '72, dis 5 %
Old Colony dis 2½ %

Shovels and Tongs.

Iron Head list net
Brass Head dis 5 %
Polished Steel new list dis 15

Slates.

Square Frames, R'd Corn'd, by case dis 60&10
Less than a case dis 50 @ 55
Oval Frames, by case dis 40 @ 40&10 %
Less than a case dis 30

Spoons.

Iron new advanced list dis 10
By the case dis 20
Britannia dis 20
Plated A 1 dis 25&5 %
German Silver add 5 %
Tinned (P. S. & W.)—
Teas $1.50 ₩ gross, net
Tables 2·75

Stocks and Dies.

dis 15 @ 20

Stove Polish.

Joseph Dixon's ₩ gross $6 00 @ 6 25
Gold Medal ₩ gross $5·50

Squares.

Steel dis 50 %; full cases, dis 50&
Iron dis 50 %; full cases, dis 50&10 %
Nickel Plated add $2 50 @ $4 00 ₩ doz net
Try Squares and T Bevels dis 40&10 %
Star Try Squares and Bevels dis 20 %

Tacks.

Full Weight American Iron dis 40&7½ %
Half Weight American Iron dis 70&7½ %
Carpet dis 7½ %
Brads American dis 50&7½ %

Finishing Nails	½	⅝	¾	⅞	1 in. and over
₩ lb.	25	20	17	14	12½c dis 7½ %

Trunk and Clout	½	⅝	¾	⅞	1 in. and over
₩ lb.	25	20	17	14	12½c dis 7½ %

Copper Tacks ₩ lb 56c—dis 7½ %
Iron Shoe Nails, ₩ lb 4-8 and longer, 10c; 3⅛-8, 10½c dis 7½ %
Double Pointed new list dis 33⅓ %

Tapes, Measuring

American Flask and Cap Co dis 30 %
Eddy's dis 10&10 %

Toe Calks.

per lb 13c

Tobacco Cutters.

Champion dis 20 %
Peck, Stow & Wilcox dis 10 %

Traps.

Newhouse dis 17½ %
Hotchkiss dis 20 %
Peck, Stow & Wilcox dis 30 %
Blake's Patent dis 5 @ 20 %

Vises.

Trenton Vises, Solid Box.
30 to 110 lbs 17c
111 to 160 lbs 18c
160 and over 21½c
Peter Wright's ₩ lb 1[illegible] c. gold
Wilson's Solid Box dis 10 %
39 to 160 lbs. 18c
160 and upward 21c
Jameson's Parallel dis 25&10 %
Backus, Parallel dis 25&10 %
Union, Parallel dis 25%
Buffalo, Parallel new list dis 15 %
Fisher & Norris' Double Screw Par. dis 15 @ 15&5%

Wire.

Bright and Annealed Nos. 0 @ 18 dis 30 @ 25 %
" " Nos. 19 @ 26 dis 30 @ 35 %
" " Nos. 27 @ 36 dis 32 @ 40 %
Coppered Nos. 0 @ 18 dis 10 @ 20 %
Galvanized dis 30 @ 40 %
Tinned dis 1 @ 20 %
Cast Steel 1 @ 5 %
Tinned Broom Wire dis @ 25 %
Galvanized Telegraph, Nos. 8 & 9 ₩ lb 0 @ 11c
" " " 10 & 11 ₩ lb 1 @ 12c
" " " 12 ₩ lb 1[illegible] @ 12¾ c
Annealed Fence, Nos. 8 & 9 dis @ 25 %
" Grape, " 10 to 14 dis @ 25 %
Fence Staples ₩ lb 10c

Wrenches.

Baxter's Adjustable "S" dis 30 %
Baxter's Diagonal dis 30 %
Collins & Co.'s new list 30 %
Coes' Genuine dis 30 %
Coes' Pattern (Wrought) dis 45 %
" (Malleable) dis 50 %
Lindsay's Patent dis 25 %
Taft's Pattern dis 15&15 %

METALS.

IRON.—DUTY: Bars, 1 to 1¼ cents per lb.; Hoop, Band, Hoop and Scroll, 1¼ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $10 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron.

AMERICAN.

Foundry No. 1 Lehigh ₩ ton $49 00 @ [illegible]
Foundry No. 2 " 47 00 @ 49
Gray Forge "
White and Mottled "

SCOTCH.

Gartsherrie nominally " 56 00 @ [illegible]
Coltness " "
Glengarnock " " 56 00 @ [illegible]
Eglinton " " 53 00 @ [illegible]

Bar Iron.

Am. Refined, at mill ₩ ton,

Rails.

Welsh, gold ₩ ton, 72 00 @ 7[illegible]
American, at works, currency. " @ 8[illegible]
Old Rails, D. H., currency " 52 00 @ 53 00

Scrap Iron.

Wrought Scrap, from store. " 52 50 @ 5[illegible]

Bar Iron from Store.

Common Iron.

¼ to 2 in. round and square	₩ ton	$100 00
⅛ x 9-16 in. " " "	"	105 00
½ in. " " "	"	107 50
2⅛ to 3 in. " " "	"	105 00
1 to 6 in. wide x ⅜ and 1 in. thick	"	100 00
1¼ to 6 in. wide x ¼ & 5-16 in. thick	"	105 00
1 and 1⅛ in. x ¼ and 5-16	"	107 50
wedish Iron.		
1¼ x ⅜ and ½	₩ ton	155 00
1¼ x ⅜ to ⅝, and ¾ square	"	150 00
1¾ to 5 x ⅜ to ¾ and ⅞ to 2-in. square	"	145 00
6 to 12 x ⅜ and ½	"	155 00
Refined Iron.		
¾ to 2 in. round and square	"	105 00
1 to 6 in. wide x ⅜ to 1 thick	"	105 00
1¼ to 6 in. wide x ¼ and 5-16 thick	"	110 00
1 and 1⅛ x ¼ and 5-16	"	112 50
Large Rounds.		
2⅛ to 2⅞, round and sqnare	"	112 50
3, 3⅛ and 3⅜ in.	"	117 50
3⅝ and 4 in	"	125 00
Rods—⅜ and 11-16, round and square	"	110 00
½ and 9-16, " "	"	115 00
7-16, " "	"	117 50
⅝, " "	"	122 50
5-16, " "	"	127 50
¾ " "	"	132 50
3-16, " "	"	152 50
Hand Iron.		
1 to 6 in. x 3-16 to No. 12	"	122 50
Horse Shoe Iron.		
¾ and ⅞ x ⅜, to ½	"	127 50
1 x ⅜, to ½	"	117 50
Ovals, Half Ovals and Half Rounds.		
¾ to 1½	₩ ton	130 00
⅝ and 11-16	"	135 00
½ and 9-16	"	140 00
7-16	"	145 00
⅜	"	150 00
Nail Rods		
UB	₩ ₤	9c
Norway Shapes		
⅜ to 2 in x ⅜ to ¾	"	8¾c
⅜ to ¾ square	"	8¾c
Norway Bar.		
⅜ to 2 in. square	"	7¾c
Spring Steel.		
1 to 4 in. wide	"	10c
Tire Steel		
⅞ to 1¼ x ¾ & 5-16	"	10½c
⅞ & 1 x 3-16		c
⅞ & 1 x ½		c
Toe Calk Steel		
⅛ to ⅞ x ¾ to ½	"	8¾c
Plow Steel.		
6 to 16 wide	"	9¼c
Sleigh Shoe Steel		
⅜ to 1½ x ⅞ to ⅝ Stock	"	8¼c
Hoops, ½ x No. 22	₩ ton	172 50
" ⅜ x No. 20	"	142 50
" ⅞ x No. 19	"	137 50
" 1 and 1¼ x No. 18	"	132 50
" 1¼ to 2 and 1x1½ x No. 13 & 14	"	127 50
Scroll Iron—⅜x12	"	150 00
" " 10	"	140 00
" " 3-16	"	135 00
" " ¼ and 5-16	"	130 00
" ⅝ x 14	"	145 00
" " 12	"	140 00
" " 10	"	135 00
" " 3-16	"	130 00
" " ¼	"	125 00
" ¾ x 14	"	137 50
" " 12	"	135 00
" " 10	"	130 00
" " 3-16	"	125 00
" " ¼	"	122 50
" " 5-16	"	122 50
" ⅞ x 14	"	132 50
" " 12	"	130 00
" " 10	"	125 00
" " 3-16	"	122 50
" " ¼	"	120 00
" " 5-16	"	120 00

Sheet Iron.

	English.	American
Nos. 10 to 20	₩ ₤ 6¾c	8c
21 to 24	" 7¾c	8¾c
25 to 26	" 7¾c	8¾c
27	" 7¾c	8¾c
28	" 8c	9c
30	" 8¼ @ 9c	
Galvanized, 10 to 20	₩ ₤	12c
21 to 24	"	13c
25 to 26	"	14c
27	"	15c
Patent Polished	"	15 c
Russia	Nos. 8 @ 11,	" 20c @ 22 c
"	Nos. 12 @ 16,	" 20c @ 22 c
Belgian	"	13 c

One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

4½	5	5½	6	7 inch.
$3 75	4 25	5 25	5 25	6 50 per doz.

RUSSIA IRON.

4½		5½	6	7 inch.
$7 00	00	13 00	13 00	14 00 per doz.

Brass.

ROLLED AND IN SHEETS.

(Brown & Sharp's Gauge.*)

For the purchase of 100 pounds and over at one time:

HIGH BRASS.

All Nos. to No. 28, and widths 14 in. and under	40c
All Nos. to No. 28, inclusive and widths over 14 to 20 in. inclusive	43c
Over 20 in. to 30 in., inclusive	46c
Half-cent ₩ ₤ advance on each No. above No. 28 to 38, inclusive.	
All Brass thinner than No. 38 is Platers' Brass at	59c
Sheets 24x48 in., and all sheets cut to particular sizes and lengths	46c
Printers' Rules	50c
Sheets wider than 30 in. and under 40 in	50c
" 40 " and over	52c
Circular sheets, in diam. from 4 in. to 14 inclusive	50c
Circular sheets, in diam. over 14 in. to 20 inclusive	53c
Circular sheets, in diam. over 20 in. to 30 inclusive	56c
Circular sheets, in diam. over 30 in. to 40 inclusive	59c
Circular sheets, in diam. over 40 in	62c

LOW BRASS.

cents ₩ ₤ more than High Brass.

ilding Metals, 7c. ₩ ₩ more than High Brass.

aters' or Gold Metal { In Bars 52c; Sawed 55c

FOR SLITTING: Metal in Width,

2 in. to ½ in., to No. 30, inclusive, 1c. ₩ ₤ advance.
2 in. to 1 in., thinner than No. 30, 2c. ₩ ₤ advance.
1 in. to ⅛ thinner than No. 30, 3c. ₩ ₤ advance.
½ in. and less to No. 30, 2c. ₩ ₤ advance.
½ in. and less thinner than No. 30, 5c. ₩ ₤ advance.

10 ⅌ discount.

SCRAP.

High B Scrap, 21 cents, net.
Low 23 " "
Gilding, 25 cents, net.

Turnings, Filings and Chips, half the price of Scrap, net.

BRASS AND COPPER WIRE.

(Stub's Wire Gauge.)

	High Brass.	Low Brass.	Gild'g and Cop'r.
Nos. 0 to 20	43	47	53
Nos. 21, 22, 23	44	48	54
Nos. 24 and 25	45	49	55

Brass Wire straightened and cut, 4 cents advance.
10 ⅌ discount

FINE WIRE—NET PRICES.

	High Brass.	Low Brass.	Gil andd'g Cop'r.
No. 26	0·45	0·49	0·55
No. 27	0·48	0·52	0·58
No. 28	0·50	0·54	0·60
No. 29	0·52	0·56	0·62
No. 30	0·54	0·58	0·66
No. 31	0·56	0·60	0·70
No. 32	0·60	0·64	0·75
No. 33	0·64	0·68	0·85
No. 34	0·68	0·72	0·95
No. 35	0·73	0·77	1·07
No. 36	0·82	0·86	1·19
No. 37	1·02	1·02	1·32
No. 38	1·32	1·32	1·62

Ten cents per pound extra for Spooling.

TUBING

(Brown & Sharp's Gauge.)

	₩ ₤
Plain to No. 20, inclusive	$0·56
Nos. 21, 22, 23, 2c. advance on List for each No.	
Nos. 24, 25, 26, 4c. " " " "	
Above No. 26 special rates.	
Plain Tube, 1-4 inch	72
" " 3-16 "	1 57
" " 1-8 "	1 82
All Mandrel-Drawn Tubes 5c. advance on List.	
Fancy Tubing 4c. advance on List above Plain.	
English, Scotch, and Extra Patterns Fancy Tubing to No. 20	65
Tubing sawed or cut 2 to 4 ft. long, 2c. advance on List.	
Add to two cents a half-cent for each additional cutting under two feet.	

10⅌ discount.

BRASS DOOR RAIL, Polished.—52 cents per lb.—10 ⅌ discount.

BELT AND HOSE COPPER RIVETS AND BURS.

Price per ₤	57	58	60	62	64	66	68	72	76c.
Nos.	7	8	9	10	11	12	13	14	15

Braziers Rivets, 51 cents per pound.

Copper and Brass Rivets and Burs made to particular sizes and pattern.

The discount on the foregoing list will be 10 per cent.

GERMAN SILVER MARKET METAL AND WIRE.

	Market Metal.	Wire.
4 per cent. 12 inch. to No. 26	0·65	0·80
6 " " "	0·75	0·90
10 " " "	0·90	1·10
15 " " "	1·00	1·25
18 " " "	1·10	1·40
26 " " "	1·20	

German Silver Sheets over 12 inches wide and weighing more than 10 lbs. $2·60 ₩ ₤ the

Advance two cents for each additional inch in width above 12 inches, and two cents per pound on each No. thinner than Nos. 26 to 36, inclusive.

All German Silver thinner than No. 36 is Platers' at 50 cents per pound additiona..

German Silver Scrap, one-third less than net price of 12 inch Market Metal; German Silver Turnings, Filings and Chips, half the price of Scrap.

*Brown & Sharp's Gauge is about two numbers finer than Stubs' Wire Guage.

COPPER—DUTY: Pig, Bar and Ingot, 5; old copper, 4 cents ₩ ₤; Manufactured (including all articles of which copper is a component of chief value), 45 ⅌ ad valorem. All subject to a reduction of 10 per cent.

American Ingot ₩ ₤ 35½ @ 35c
English " " 31 @ 32c

SHEATHING, BRAZIERS' COPPER, BOLTS, &C.

Braziers Copper, ordinary sizes, over 16 oz., per square foot	45c. ₩ ₤
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot	48c. "
Braziers' Copper, 12 oz. per square foot and lighter	51c. "
Circles less than 84 inch in diameter	48c. "
Circles, 84 inch diameter and over	51c. "
Segment and Pattern Sheets	48c "
Locomotive Fire Box Sheets	45c. "
Sheathing Copper, over 12 oz. per sq. ft	43c. "
" " 12 oz. ₩ sq. ft. & lighter	51c. "
Bolt Copper	45c. "

No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

TINNING.

14x48, by the case	8c. ₩ sheet.
14x48, less than case	10c. "
Boiler Sizes, 7 and 8 inch	12c. "
" " 9 inch	15c. "
Other sizes not larger than 30x60	2½c. ₩ sq. ft.
Larger than 30x60	5c. " "
Copper Bottoms, 48c ₩ ₤.; 5 ⅌ discount.	

O'NEIL'S PATENT PLANISHED COPPER.

14x48.

14 and 16 oz. and heavier..49c. By the case, 48c. ₩ ₤
12 oz. and lighter.....52c. " " 51c. "

Boiler Sizes.

7 in., 14x52. 8 in., 14x56, 9 in., 14x60.
14 and 16 oz. and heavier. 51c. By the case, 50c. ₩ ₤. (And all sizes not over 20 inches wide).

30x60.

14 and 16 oz. and heavier 53c. ₩ ₤.
12 oz 56c. "

LEAD—DUTY: Pig, $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2¼ cents per lb. All subject to a reduction of 10 per cent.

Spanish	@ 6¾c gold
German Refined	@ 6¾c gold
English	@ 7¼c gold
Bar dis 10 ⅌	9¼c
Pipe dis 10 ⅌	10½c
Tin Lined Pipe dis 10 ⅌	16½c
Sheet dis 10 ⅌	10½c
Shot dis 10 ⅌. Drop, 11¼c; Buck, 12¼c	

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2½ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3½ cents per lb. and 10 ⅌ ad val. Railway Bars 1¾ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.

Tool	17c
Spring	13½c
Homogeneous	13½c
Tire	12½ @ 13½c
Machinery (round and square)	11½ @ 12c
File	12½
Sheet	14 @ 16c
Saw Plate, mill and mulay	14 @ 16½c
aw Plate, gang and X cut	13 @ 14
circular as to size	18 @ 30c

Chrome Steel.

Tool	16 @ 18c
Machinery	11 @ 12c
File	12 @ 15c

English Steel—payable in gold, dis. 5 ⅌ cash.

do	Best Cast	₩ ₤ 19½c
do	Extra Cast	" 20½c
do	Round Machinery, Cast.	" 12½c
do	Swaged, Cast	" 21½c
do	Best Double Shear	" 19½c
do	Blister, 1st quality	" 15½c
do	do 2d quality	" 13½c
do	do 3d quality	" 11½c
German Steel, Best		" 12½c
do	Eagle	" 11½c
do	3d quality	" 10½c
Sheet Cast Steel, 1st quality		" 19½c
do do	2d quality	" 17½c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.

Silesian, cash	7 @ 7½c. gold
American "	7 @ 11c currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.: Electro-galvanized Plates, 2 cents per lb.; Manufacturers of, not enumerated, 35 per cent. ad val.—all subject to a reduction of 10 per cent. Bars, Banca or Block, and Pigs, free

Banca	₩ ₤ 37½c, gold
Straits	₩ ₤ @ 32c, gold
English	₩ ₤ @ 39c, gold

CHARCOAL TIN PLATE.

I C 10x14, Prime Charcoal	@ 13·00
12x12, "	@ 13·50
14x20, "	@ 14·00
I X 10x14,	@ 15·25
12x12, "	@ 15·75
14x20 "	@ 16 25
For each additional X add	2·25 @ 2·50

COKE TIN PLATE.

	Best.	2d Quality.	Ordinary.
I C 10x14	$12·00	$11·50	$11·00
14x20	12·50	12·00	
12x12	12·50	12·00	

TERNE PLATE.

	Prime. Charcoal.	2d qual. Charcoal.	Coke.
I C 14x20	$11·50 @ 12·00	11·25 @ 11·75	10·50 @ 11·50
I X 14x20	13·50		

ZINC—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet, 2½ cents per pound. All subject to a reduction of 10 per cent.

Sheet	cask 10
"	open 10½

Paper Stock, Old Metals, &c

(Dealers' Selling Prices.)

Canvas linen	5½ @ 5¾
Canvas, cotton, No. 1	7¼ @ 7½
" " No. 2	4
White linen rags, No. 1	6½ @ 7
" " No. 2	5 @ 5¼
Colored	3 @ 3½
Mixed woolens	2 @ 3
Soft woolens	11
Gunny bagging	2¾ @ 3
Jute Butts	1¾ @ 2
Kentucky bagging	3½ @ 3¾
Book stock	4¼
Waste paper and scraps	2½ @ 3
Rope cuttings	1½ @ 3
Kentucky Bale rope	4 @ 4½
Oakum junk, No. 1	5 @ 5¾
" " No. 2	4
Grass rope	4 @ 4¼
Tarred Shaking	2 @ 2½

Old Metal.

Copper	26 @ 27
Yellow metal	18 @ 20
Brass	18 @ 21
Old lead, solid	6½ @ 6¾
Tea lead	5½
Wrought Iron	1¾
Sheet iron	1 @ 1½
Cast iron	@ 1½
Machinery iron	1¼ @
Zinc	@ 5¼
Pewter, No. 1	27 @ 28
" No. 2	19 @ 12
Spelter	7

Paints, Oils, etc.

Paints.

Black, lamp—Coach Painters	₩ ₤ 20
" " Ordinary	6c
" Ivory Drop, fair	15c
" " best	26c
Black Paint, in oil	kegs, 8c, asst'd cans, 10½c
Blue, Prussian, fair to best	50 @ 75c
" " in oil	35 @ 65c
" Chinese, dry	83c
" Ultamarine	25 @ 30c
Brown, Spanish	1¼c
" Van Dyke	.c
Carmine, French	$14 00
Green, Chrome	15 @ 25c
" " in oil	18 @ 25c
" Paris	good, 30c, best, 40c
" " in oil	" 30c, " 45c
Mineral Paints	1¼ to 4c
Orange Mineral	14½c
Red Lead, American	9¼c
" " English	10½c
" Venetian (N. C.) dry	2½c
" " in oil	asst'd cans, 11c, kegs, 8½c
" Indian, dry	10c
Rose Pink	13c
Sienna, American, Raw	4c
" Burnt	4½c
" " in oil	16 @ 26c
" Raw "	15 @ 25c
Umber, Burnt	4 @ 8c
" " in oil	16 @ 21c
" Raw	3½ @ 7½c
" " in oil	16 @ 22c
Vermillion, Chinese	1 40
" English	1 30
" Trieste	1 05
" American, Common	23c
White Lead, American, pure dry	10¾c
" " in oil	11½c
White, Paris, English, prime	in bbls. 2½ @ 2¾c
Yellow Ochre, French	2½ @ 2¾c
" " in oil asst'd cans, 11c, kegs, 8½c	
" " Vermont in casks 1½c	
" Chrome	17 @ 27c
" " in oil	18 @ 28c
Zinc White, American No. 1 dry scarce	10c
" " " 1, in oil	12c
" French (Paris)	11½c
" " in oil	12½c

Oils.

Linseed Raw	₩ gal. casks, 94c, bbls, 95c
" Boiled	99c, " 1·00
Whale, Crude	"
" Bleached Winter	"
Sperm, Crude	"
" Winter unbleached	"
" Bleached	" 1 85
Seal, Extra Refined	" 87½c
Lard, Pure Winter	" 80c
" Spring	" 78c
Cotton Seed, Crude	" 55c
" Southern Yellow	" 65c
" White	" 75c
Neatsfoot, Winter	" $1 35
Natural Lubricating	" 45c

Sundries.

Asphaltum	8c
Benzine	₩ gal. 20c
Chalk	1½c
" Block	
Dryer, Patent, Am'n	asst'd cans, 11½c., kegs, 9c
" English	" " 12c., " 11c
Flocks	
Frostings	30c
Glue, White	33 @ 45c
" Sheet	20c
Glazier's Points, Zinc	9c
Gum, Copal	36c
" Damar	25c
" Shellac, English	50c
" " " dark	46c
Litharge	10c
Pumice Stone, selected Lumps	5 @ 7c
" " powdered	4c
Putty in bladders	3½c
" in bulk	3c
Rotton Stone, soft, English	5c
Sand Paper, crystal	$3 25
" " flint	4 50
Spirits Turpentine	68c
Whiting, Spanish	1½c

Glass.

French Window—1st, 2d, 3d, and 4th qualities.
Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 7 x 9	$8·00	$7·00	$6·50	$6·00
8 x 10 to 10 x 14	9·00	8·00	7·25	6·50
10 x 15 to 12 x 16	9·75	8·75	7·75	7·00
11 x 18 to 16 x 22	10·25	9·25	8·25	7·50
15 x 24 to 15 x 32	12·50	11·50	10·50	8·50
20 x 28 to 22 x 30	15·00	13·00	11·00	9·00
26 x 28 to 32 x 36	16·00	14·50	12·50	
24 x 36 to 24 x 40	18·00	16·00	13·50	
28 x 38 to 26 x 44	18·50	16·50	14·00	
28 x 44 to 30 x 48	20·50	18·00	15·00	
30 x 50 to 32 x 52	22·00	20·00	16·00	
32 x 54 to 32 x 58	26·00	23·00	18·50	
34 x 58 to 34 x 60	30·00	27·00	22·50	
36 x 60 to 40 x 60	36·00	33·00	28·50	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 7 x 9	$12·00	$11·50	$10·00	$9·50
8 x 10 to 10 x 14	13·50	12·00	11·00	10·00
10 x 15 to 12 x 16	15·00	14·00	12·50	11·00
11 x 18 to 16 x 22	16·50	15·50	14·00	12·00
15 x 24 to 15 x 32	20·00	18·00	17·00	
20 x 28 to 22 x 30	24·00	22·00	18·50	
26 x 28 to 32 x 36	26·50	24·00	22·00	
24 x 36 to 24 x 40	30·00	27·00	23·50	
28 x 38 to 26 x 44	32·00	28·50	25·50	
28 x 44 to 30 x 48	34·50	31·00	27·00	
30 x 50 to 32 x 52	36·50	33·00	28·50	
32 x 54 to 32 x 58	43·00	39·00	34·00	
34 x 58 to 34 x 60	50·00	45·00	40·00	
36 x 60 to 40 x 60	60·00	55·00	50·00	

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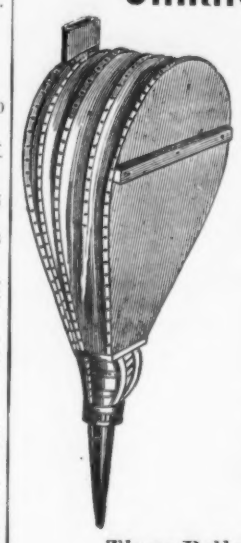
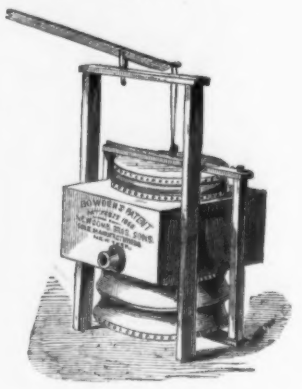


Also the Sole Manufacturers of

Bowden's Patent TRIPLE-ACTION Forge Bellows.



These Bellows are superior to all others now in use.

They can be used either in single or double-action, for light or heavy work, as required. They maintain a steady and continuous blast, the air being forced into the chest both at the up and down stroke. The strength of blast obtained is double that of the ordinary bellows of the same dimensions. They work easily. While the blast is double, the power required to work them is no more than that of a common bellows. Being fully rigged and geared, ready for work, and easily moved from place to place, they are very convenient or rail road, mining, and other purposes where portable bellows are required. They economize space, occupying only half the room of an ordinary bellows. These Bellows come to hand at once. A good blast is obtained at the first stroke, and no time or labor is lost, as in the old single-action bellows, in getting up a good blast. They can be made of any size and shape, to suit all requirements. They are the cheapest Bellows in the world. With all the advantages of double-action, they cost no more, power for power, than the common single-action of same quality. For further particulars send for descriptive circular and price list.

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Strong, Cheap.

Durable. No Soot, Better Draft.

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Also, cuts Vegetables, &c. It will cut hash, including potato, in one minute, saving much time in preparing meals. It will cut mince pie meat and sausage meat in from two to three minutes, and with less labor than in chopping the same time with a common knife! While it is superior as a sausage meat cutter, it is much more valuable to the family for cutting boiled meat and vegetables, because much more frequently brought into use, yet costs no more than "Sausage" Meat Cutters. The meat in the Machine is simply rolled under the knives, so that but little power is required. The machine has been thoroughly tested, is meeting with a ready sale, and is warranted to be all that it is represented. Retail Price, $3·00; Wholesale Price, $27·00 per doz. Orders are respectfully solicited. Manufactured by *D. H. WHITTEMORE, Worcester, Mass.*, Manufacturer of the "Bay State" and "Skeleton" Apple Paring, Coring and Slicing Machines, "Union" Apple Parer, "Bay State" Peach Parer, Peach Stoner and Halver, Nut Cracker, &c.

THE IMPROVED
EXCELSIOR LAWN MOWERS,
FOR HAND OR HORSE POWER.

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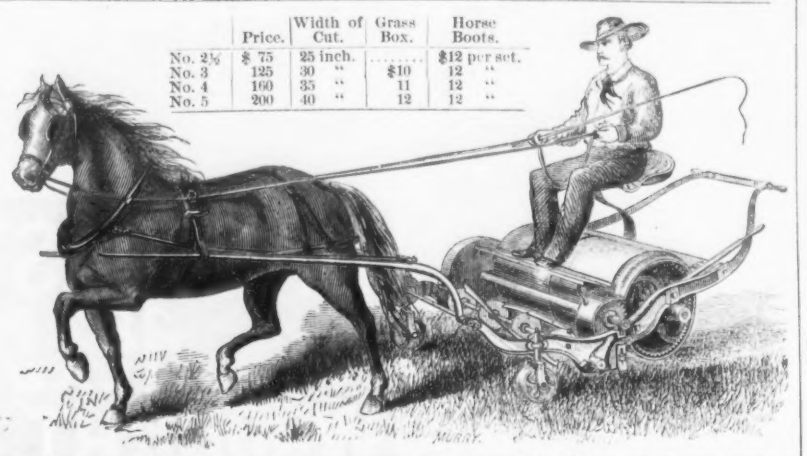
Patented July 26th and November 15th, 1870. Every Machine Warranted.



	Price.	Width of Cut.	Grass Box.	Horse Boots.
No. 2½	$ 75	25 inch.	.....	$12 per set.
No. 3	125	30 "	$10	12 "
No. 4	160	35 "	11	12 "
No. 5	200	40 "	12	12 "

No. 1 Mower—Cuts 14 inches—Price, $30.
No. 2 " " 18 " " $35.
The No. 1 for general use, and warranted.
The No. 2 for large lawns—when smooth.

The Excelsior is simple and durable. The *gearing* securely incased and will not clog. Has a *full roller*, without which no machine is perfect. A *ball ratchet*—"noiseless"—needs no oiling. Adjustable *wrought iron handle*. *Hangers* secured by bolts. The front rollers to these are adjustable, to vary the hight of cut. *Open balance wiper*—with *steel knives*—the only practicable means of securing strength and ease of draft. *Patent iron handle*, with attachment on each side of the machine—avoids the serious annoyance of a single wooden handle. The **Excelsior Lawn Mower** having been before the public for four years, and subjected to the most severe tests, the manufacturers feel warranted in asserting that for SUPERIORITY in *simplicity of construction* and *durability* it has no equal. It is *important* in either *Horse* or *Hand Lawn Mowers*, that their design should combine the *greatest strength* with least amount of *metal*; we therefore use only the very *best material*, together with *good workmanship*, enabling us to produce *Lawn Mowers* light *in weight*, of *easy draught*, and at a price within the reach of all.

The Excelsior has received the most favorable commendation from all, and the advantages claimed for it over other machines are fully appreciated wherever it is known. To this we add numerous testimonials, but the fact that our sales have greatly increased year by year, is the most convincing proof of its adaptation to the wants of the public.

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New England Fair, held at Lowell, Mass., Sept., 1871 and 1872; New Jersey State Fair, held at Waverly, N. J., Sept., 1871 and 1872; the first premium at the New York State Fair, 1871; Western New York Fair, 1871; Ohio State Fair, 1871 and 1872; Northern Ohio Fair, 1871 and 1872; Michigan State Fair, 1871 and 1872; Indiana State Fair, 1871; Wisconsin State Fair, 1871 and 1872, Tennessee State Fair, 1871; Virginia State Fair, 1871; South Carolina State Fair, 1871.

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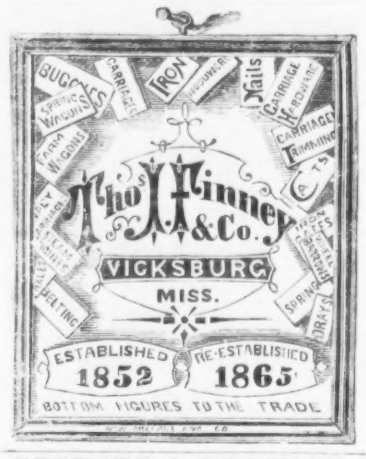

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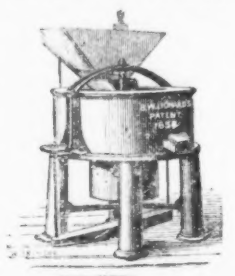

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POLISHED & DETACHABLE BUCKETS
CHEAPEST & BEST WHEEL MADE.
CAPRON WATER WHEEL CO. HUDSON, N.Y.

ERIE RAILWAY.

WINTER ARRANGEMENT of Trains taking effect Nov. 4th, 1872. From Chambers St. Depot. (For 23d St. see note below).

9·00 A. M. Cincinnati and Chicago Day Express. Drawing Room Coaches to Buffalo and Niagara Falls, and Sleeping Coaches to destination.

11·00 A. M. Express Mail for Buffalo and Niagara Falls. Drawing Room Coach to Susquehanna and Sleeping Coaches to destination.

5·30 P. M. Night Express. Sleeping Coaches to Buffalo and Niagara Falls.

7·00 P. M. (Daily) Cincinnati and Chicago Night Express. Sleeping Coaches through to Cincinnati, Buffalo, Niagara Falls, and thence to Chicago.

Additional Trains leave for

Newark, 6·30, *8·45 and 11·30 A. M., and 3·15, 5·15 and *6·30 P. M.

For Port Jervis, 8·00, 9·00, 11·00 and *11·15 A. M., 4·30, 5·30, †6·30 and *7·00 P. M.

For Goshen and Middletown, *7·30, 8·00, †8·30, 11·00 and *11·15 A. M., 3·30, 4·30, 5·30, †6·30 and *‡7·00 P. M.

For Warwick, 8·00, 11·00 and *11·15 A. M., 4·30 P. M.

For Newburgh, 8·00, †8·30, 9·00 and 11·00 A. M., 3·30, 4·30 and 5·30 P. M.

For Suffern, †7·30, 8·00, †8·30, 11·00 and *11·15 A. M., 3·30, 5·00, †6·30, 7·00 and *11·30 P. M.

For Ridgewood, Hohokus, Allendale, and Ramsey's, †7·30, 8·00, †8·30, 11·00, *11·15 A. M., 3·30, 5·00, 6·00, †6·30, 7·00 and *11·30 P. M.

For Paterson, 6·45, *7·30, 8·00, †8·30, 10·00, 11·00, *11·15 A. M., 12·00 M., *1·45, 3·30, 4·00, 5·00, 5·15, 5·30, 6·00, *6·30, *7·00, 8·00, 10·00 and *11·30 P. M.

For Rutherford Park and Passaic, 6·45, *7·30, †8·30, 10·00, 11·00 A. M., 12·00 M., *1·45, 3·30, 4·00, 5·15, 6·00, *6·30, 8·00 10·00 and *11·30 P. M.

For Hackensack and Way, 5·00 8·15 and †8·45 A. M., 1·00, 4·00, 5·00, 6·00 and 6·30 P. M., and Saturdays only, 12·00 midnight.

For Hillsdale and Way, 5·00, 8·15 and †8·45 A. M., 1·00, 4·00, 5·00 and 6·00 P. M., and Saturdays only, 12·00 midnight.

For Spring Valley and Way, 5·00, 8·15 †8·45, and ·00 A. M., 1·00 4·45, 5·00 and 6·00 P. M., Saturdays only 12·00 midnight.

For Englewood 5·00, 7·45, *9·00, A. M., 1·30, 3·15 4·15, 4·45, 5·30, 6·30 and *7·45 P. M. Saturdays only, 12·00 midnight.

For Creeskill, 5·00, 7·45, *9·00 A. M., 1·30, 3·15, 4·15, 5·30, 6·30 and *7·45 P. M. Saturdays only, 12·00 midnight.

For Upper Piermont, 5·00, 7·45, *9·00, A. M., 1·30, 4·15, 4·45, 5·30, 6·30 and †7·45 P. M. Saturdays only, 12·00 midnight.

For Piermont and Nyack, 7·45 and *9·00 A. M., 1·30, 4·45, §5·30, 6·30 and †7·45 P. M. Saturdays only 12·00 midnight.

N. B.—Trains leaving Chambers street on even hours or half hours leave 23d street fifteen minutes earlier than above time. The 5·00 A. M., 10·00 and 11·30 P. M. Trains start from Chambers Street only.

N. B.—Trains on the N. R. R. and Newark Branch leaving Chambers street on quarter hours, leave 23d street thirty minutes earlier than above time.

Tickets for passage and for Apartments in Drawing Room and Sleeping Coaches can be obtained, and orders for the checking and transfer of Baggage may be left at the Company's offices: 241, 529 and 957 Broadway; cor. 125 street and 3d avenue; 4 Court street, Brooklyn; at the Company's Depots, and of Agents at the principal hotels.

* Daily. † Sundays only. *‡ Goshen Sundays only. § Nyack only.

JNO. N. ABBOTT, General Passenger Agent.

Cornell Lead Co.,

Cor. Delaware and Virginia Streets, BUFFALO, N. Y

S. G. CORNELL & SON WARRANTED PERFECTLY PURE WHITE LEAD BUFFALO, N.Y.

TRADE MARK.

Manufacturers

WHITE LEAD Dry and in Oil,

Lead Pipe, Sheet and Bar Lead.

S. G. CORNELL, Prest. A. P. THOMPSON, Vice-Prest.
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White Lead, &c.

THE UNION WHITE LEAD MANUFACTURING COMPANY. PURE

Union White Lead Mfg. Company,
26 Burling Slip, New York.
J. W. HOW, Secretary. JAMES HOW, President.
MANUFACTURERS OF
White Lead, Red Lead, Litharge, Orange Mineral.

Brooklyn White Lead Co.

BROOKLYN WHITE LEAD CO., INCORPORATED 1825
SUPERIOR, PURITY, DURABILITY AND COLOR
ADDITIONAL TRADE MARK
We caution consumers against the numerous spurious brands, imitations of ours, of adulterated and greatly inferior qualities which are sold as our LEAD.
$50 Reward for detection of counterfeits.
F. HOWE, Tr.
Office, No. 89 Maiden Lane, NEW YORK.
BROOKLYN WHITE LEAD CO. PREMIUM LEAD WARRANTED PURE
MANUFACTURING IN PURE LINSEED OIL

TRADE MARKS.

White Lead, Red Lead and Litharge.

Maiden Lane, NEW YORK.

FISHER HOWE, Trea.

JOHN JEWETT & SONS,

Manufacturers of the well known Brand of

WHITE LEAD

JEWETT & SONS' PERFECTLY PURE WHITE LEAD.

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Also Manufacturers of

LINSEED OIL AND FLOOR OIL CLOTHS.

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ROBERT COLGATE & CO. WARRANTED

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MANUFACTURERS OF

White Lead, ("Atlantic,") Red Lead, Litharge & Linseed Oil.

ROBERT COLGATE & CO.,

287 PEARL ST., NEW YORK

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No. 231 South Front St.,
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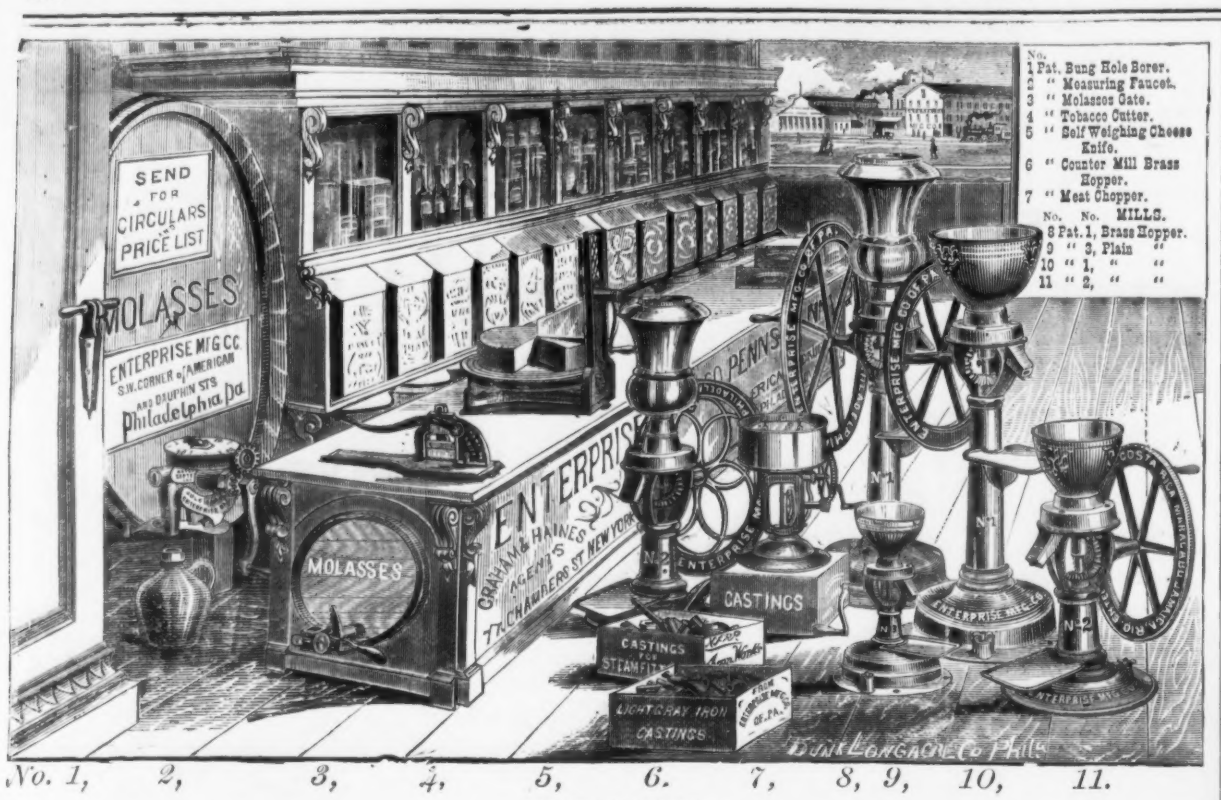
MANUFACTURERS OF

Pure White Lead, Red Lead Litharge, Orange Mineral,

LINSEED OIL, and

PAINTERS' COLORS.


No.
1 Pat. Bung Hole Borer.
2 " Measuring Faucet.
3 " Molasses Gate.
4 " Tobacco Cutter.
5 " Self Weighing Cheese Knife.
6 " Counter Mill Brass Hopper.
7 " Meat Chopper.
No. No. MILLS.
8 Pat. 1, Brass Hopper.
9 " 3, Plain "
10 " 1, " "
11 " 2, " "
SEND FOR CIRCULARS & PRICE LIST
MOLASSES
ENTERPRISE MFG CO
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ENTERPRISE MFG. CO., of Pa., or **GRAHAM & HAINES, Agents,**
HARDWARE MANUFACTURERS, 88 Chambers St., New York.
W. Cor. of American and Dauphin Sts., PHILADELPHIA.

SANDUSKY TOOL CO.,

MANUFACTURERS OF

PLANES,

Plane Irons, Carpenters', Cabinet Makers', and Coopers' Tools

BENCH, HAND, AND TAIL SCREWS

and all kinds of **SMALL HANDLES.** We use only **Second-Growth Ohio Timber** in our Planes, and warrant our Irons equal to any in the market.

Our Planes are better shape, finer finish, and better timber than any other tool in the market

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Sandusky, Ohio,

Or GRAHAM & HAINES,
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GENERS.

Genuine Emerson's Razor Strap.
[ESTABLISHED 1810.]
BENJAMIN F. BADGER, MANUFACTURER, 51 ELM STREET, CHARLESTOWN, MASS.
Ent'd according to Act of Congress in the year 1868, by Benj. F. Badger, in the Cl'k's Office of the Dis. Court of Mass.

1810

SMITH, BURNS & CO.,

Manufacturers of

Galvanized and Japanned Sheet Iron Goods and Tin Ware.

Coal Hods. Patent Stamped Corrugated Riveted Bottom.

Fry Pans. "Excelsior" Polished.

Excelsior Broiler. Best and Cheapest in the market.

Combined Chamber and Commode Pail, Ash Cans, Galvanized and Japanned Water Pails, Well Buckets, Chamber Pails, Tea Kettles, &c., &c.

Galvanized Toilet Sets. Fancy and Grained.

Chamber Pails, Slop Pails, Foot Tubs, Baths, Water Carriers, Coolers, &c., &c.

Stamped and Piece Dish Pans and Plain Tin Ware.

Send for Illustrated Catalogue.

Warehouse, 45 Cliff Street, between Beekman and Fulton Streets ,NEW YORK.

Sidney Shepard &Co.,
No. 68 Main St., Buffalo, N. Y.,

TRADE Established in 1836. S & Co. BUFFALO, N.Y. MARK.

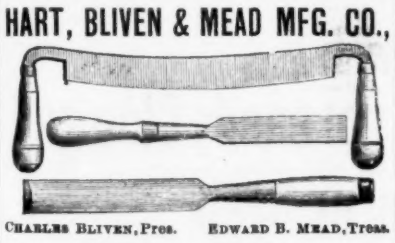
Proprietors of the

BUFFALO STAMPING WORKS.

Manufacturers of

TINNED & WROUGHT IRON FRENCH WARE
STAMPED AND JAPANNED TIN WARE.
Dealers in
HARDWARE AND METALS,
Tinmens Tools, Machines, and Furnishing Goods.
Please send for Illustrated Catalogues and Price Lists.

HART, BLIVEN & MEAD MFG. CO.,



CHARLES BLIVEN, Pres. EDWARD B. MEAD, Treas.

Office and Wareheuse at
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Three Sets of Factories at Kensington Conn.;
MANUFACTURERS, IMPORTERS AND DEALERS IN
General Hardware.

RIPLEY MFG. CO.,
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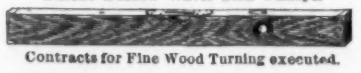
Adjusting Plumbs and **LEVELS,** Mallets.

Boxwood and Ivory **RULES,** Door Stops.

Best Choker Traps, Steak Hammers, Cover Lifters, Automatic Boot Jacks, Patent Bushed Wheel Sash Pulleys.



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JOHN TOLER, SONS & CO.
MANUFACTURERS OF
FURNITURE CASTERS.
We make the greatest variety of any house in the States. We confine ourselves exclusively to their manufacture, and guarantee the quality. We solicit only the trade, to whom we are prepared to give the best prices.
ESTABLISHED IN 1844.
108, 110, 112, 114 Adams Street,
NEWARK, N. J.
Sole manufacturers of Ford's Celebrated Patent Casters.

Pipe, Fittings, &c

McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

For STEAM, WATER and GAS.

Wrought Iron Pipe & Fittings, Plain and Galvanized

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WROUGHT IRON PIPE

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TOOLS & STEAM FITTERS SUPPLIES &c.
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SUCCEED MORRIS TASKER & Co. AS

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FOR HIGH & LOW PRESSURE STEAM HEATING APPARATUS FOR ALL CLASSES OF BUILDINGS.

Send for Illustrate Catalogue.

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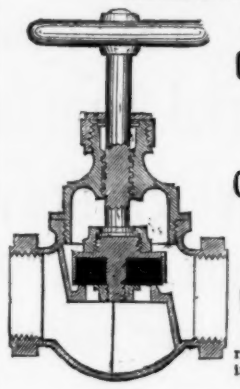
439 East 10th St., New York,

Manufacturers of



Jenkins' Patent **Compression Valves** AND **Gauge Cocks** Also, Nelson's Patent **LUBRICATOR.**

Warranted the most reliable and durable in the country.

CAST IRON PIPES,

FOR WATER AND GAS.
Branches Retorts, &c.
Warren Foundry & Machine Co.,
PHILLIPSBURG, NEW JERSEY.

EATON & COLE.

Sole Agency for the East.

Manufacturers of
Wrought Iron Pipe Fittings, BRASS VALVES, COCKS, TOOLS, &C.,
58 John Street, NEW YORK.

GRAFF TUBE WORKS.

WILLIAM GRAFF & CO.,
Manufacturers of Plain and Galvanized

Wrought Iron Pipe

For
Gas, Steam, Water, Oil, &c.,
No. 140 First Ave., PITTSBURGH, PA.
Pipe of any Size, Length or Thickness furnished to order.

Chas. Gregg Stearns, Pres. A. F. Weaver, Treas.
Geo. Watson, Sec.

THE CHARLES GREGG MANUFACTURING CO.

FITTINGS FOR

Steam, Gas and Water,

PLAIN AND GALVANIZED

WROUGHT IRON PIPE,

Nos. 62 & 64 Gold Street,
NEW YORK.
Business Established, 1836. Incorporated, 1872.

Industrial Tube Works.
ISAAC J. GRIFFITHS & BROS.
Manufacturers of
Wrought Iron & Galvanized Tubes
For Gas, Steam and Water.
Brass and Iron Valves, Cocks,
Cast and Malleable Iron Fittings.
Tubes cut and fitted to plans and specifications.
1529, 1531, 1533 & 1535 South 7th St.,
PHILADELPHIA.

WASHINGTON PIPE WORKS,
Office, No. 8 Central Street.
BOSTON, January 17, 1872.

The Washington Pipe Works are now in full operation, and I take this method of informing my friends and the public that I am now prepared to fill all orders for the different size of

STEAM & GAS PIPE & FITTINGS

Of the best quality and at the lowest market rates.
THOMAS CUNNINGHAM.
Address, Box 3042.

WM. S. CARR & CO.
Sole Manufacturers of
Carr's Patent Plumbers' Goods,
Pumps, Water Closets, Fountains, Vases, &c.
OFFICE AND WAREROOMS,
106, 108 & 110 Centre Street,
Factory, Mott Haven, New York.

W. ROSE & BROTHERS

WEST PHILADELPHIA,
Manufacturers of
Plasterers' and Brick Trowels,
Hammers and Chisels.
ALSO,
Saddlers' Round Knives, etc.,
N. E. cor. 36th & Filbert Sts.
☞ Please send for Price List.

PHILADELPHIA.

(*Corrected weekly by Loyd, Supplee & Walton.*)

Terms, 30 days. For 60 or 90 days' interest added at 10 per cent. per annum.

ANVILS.

Solid Cast Steel ₱ lb 12½c
Peter Wright's ₱ lb, gold, 12½c
Wilkinson's 11½c
Eagle, ₱ lb 11 cents, currency dis 15%

APPLE PARERS.

Reading, Turn Table per doz $8 50
Union per doz 8 00

AXES.

Mann's light $14 00, dis 10%
Hunt's, Light 15 00, dis 5%
Red Indian, all sizes net $14 00
Red Chieftian " net 14 75

AUGERS AND BITS.

Bates' Manufacturing Co 's Bits dis 20 @ 20&5%
Douglas' " " " " dis 20 @ 25%
Ives' " " " " dis 20 @ 20&5%
Bouney's Pat. Hollow Augers dis 25%
Bates' Mfg. Co. Augers dis 20 @ 20&5%
Ives " " dis 20 @ 20&5%
Douglas " " dis 20 @ 25%
Cook's Patent Bits dis 25 @ 25&10%
Russell Jennings' Bits dis 10%

BALANCES.

Landers, Frary & Clark's dis 10 @ 15%
Chatillon's dis 10 @ 15%
Morton's dis 10 @ 15%
Common Spring, with Hook ₱ doz $1 38 @ 2 00

BELLS.

Bevin Bros. Mfg. Co. Hand Bells dis 50%
Other makers, light dis 50%
Cone's Door Bells dis 10%
Western and Kentucky dis 50%

BORING MACHINES.

Bates' Mfg. Co., complete with augers dis 10 @ 15%
Douglas' " " " dis 10 @ 15%
Common No. Augers $4 25 @ 4 00
Angular, Extra, No. Auger 5 50 @ 5 00

BOLTS.

Eastern Carriage Bolts dis 60 @ 60&10%
Western " " dis 60 @ 60&10%
Philadelphia Carriage Bolts dis 35 @ 40%
Wrought Shutter Bolts dis 35&10%
Cast " " dis 35%

BRACES.

Barber's dis 30&10%
Burholomew's dis 10 @ 15%
Spofford dis 33⅓ @ 37½%

BUTTS.

Cast Fast Joint, Narrow dis 15%
" " Broad dis 30%
Cast Loose Joint dis 40%
Acorn Drilled dis 33⅓%
Wrought Loose Pin dis 15%
Wrought Table net
" Narrow list net
" Loose Joint dis 25%
Parker's Blind Butts } dis 25%
Shepard's " " } By the case
Clark's " " dis 30%
Hall & Porter's do. dis 25 @ 25&5%
Palmer's do. dis 30 @ 30&5%

CHAINS.

German Halter, new gold list @ dis 10%
" Coil new gold list @ dis 10%
Galvanized Pump ₱ lb 15c
English Coil, less than cask add ½c. ₱ lb
Common Chain, ½c. ₱ lb less.
Best Proof Coil Chain—
₱ lb.... 14½ 11¾ 10½ 10 9¾ 9½ 9c gold
3-16 ¼ 5-16 ⅜ 7-16 ½ ⅝ in.
By the cask, 560 lbs., discount ½c per lb. Common Chain, ½c per lb. less than proof.

CHISELS.

Socket Framing dis 60 @ 60&5%
Socket Firmer dis 60 @ 60&5%
Tang Firmer dis 40 @ 40&5%
Beaty's Framing and Firmer dis 10 @ 10&5%

CASTERS.

Porcelain Wheel dis 20 @ 20&5%
Iron dis 20 @ 20&5%
Brass dis 20 @ 20&5%

CLOTHES WRINGERS.

Reliance advanced March 7 per doz $72 00
Crown " " 7 " " 72 00
Monitor " " 7 " " 72 00
Universal " " 7 " " 72 00
Novelty " " 7 " " 72 00
In 5 dozen lots assorted, at one time $70 00 per doz.

COFFEE MILLS.

Common Box and Side advanced April 1872 dis 15%
Patent " " " dis 10%

CUTLERY.

American Pocket (best) dis 20 @ 25%
Landers, Frary & Clark, J. Russell & Co., and Lamson & Goodnow Mfg. Co.'s, new net list @ dis 5% from old list

DRAWING KNIVES.

Hart Mfg. Co.'s dis 60 @ 60&5%
Concave Adjustable Handle dis 10%
Beatly dis 10%

FILES.

Nicholson Mill Files, new list, $5 00 to £ cur
" Bastard " " 5 00 to £ cur
" Taper " " 5 00 to £ cur
Butcher's Mill .5 75 to £ gold
" Bastard .5 50 to £ gold
" Taper .5 50 to £ gold

PLUTING MACHINES.

Royal, No. 1, 4¾ inch Rollers list $6 00
" No. 2, 6 inch Rollers list 7 00

HAMMERS AND HATCHETS.

Yerkes & Plumb's dis 5 @ 10%
Hammond & Son's dis 5 @ 10%

HINGES.

Strap and T list net @ dis 5%
Bonney's Gate dis 20%

HORSE NAILS.

	Nos. 6	7	8	9	10
Ausable Horse Nails	27	25	24	23	22
Globe " "	29	26	25	24	23
Brundage " "	26	24	23	22	21
	Nos. 5	6	7	8	9 10
Putnam " "	32	28	26	25	24 23

On Ausable Globe & Brundage 1000 lb lots dis 5%

KNOBS.

Door (regular manufacture) dis 25%
Porcelain and Mineral dis 25%

LOCKS AND LATCHES.

Rim and Mortise dis 25%
Till and Cupboard dis 20 @ 25%
American Padlocks dis 40%
Trunk Locks dis 5 @ 10%
Thumb and Roggens Latches net @ dis 10%

MATTOCKS.

Long and Short Cutter dis 10%
Western Pattern dis 10%
Pennsylvania Pattern dis 10%

MOLASSES GATES.

Enterprise Mfg. Co.'s Measuring Faucets dis 20%
Stebbins' Gates dis 50%
Lincoln's " dis 40 @ 40&10%
Landers, Frary & Clark's, Petroleum dis 10 @ 10&10%
Taylor's Petroleum Faucets dis 20 @ 20&10%

MEAT CUTTERS AND STUFFERS.

Stow Mfg. Co. Meat Cutters, new list dis 5%
Dixon " " " dis 5%
Hale " " " dis 10%
Stow Mfg. Co. Stuffers dis 5%

RULES.

Stanley Rule and Level Co dis 40&10%
Stevens and Hubbard's

SQUARES.

Steel Squares, new list dis 50%
Iron " " " dis 50%

SAWS.

Disston's Cross Cut dis 12½%
Disston's Hand dis 7½%
Wm. McNiece's Hand, Cross-Cut and Circular, new list dis 10%
Boynton's Lightning, new list dis 30%

SHOVELS AND SPADES.

Rowland's Plain Back, advanced Apr. 1872 dis 5&5%
" Back Strap " " " dis 5&5%
Oliver Ames & Sons, advanced April 8 net list
Brady Shovel Co dis 7½%

SAD IRONS.

Reading (planed face) per lb. 6c.
Coquanock (polished face) " 5c.

STOVE POLISH.

Gem per gross $5 00
Onyx " $5 00

SASH LOCKS.

Clark's Patent dis 20%
Ferguson " dis 20%
Bonney's " Improved dis 25%

SCREWS.

Iron (list Mar 6) dis 50%
Brass (Brass Screw list) dis 40%

SPOONS.

Plated Spoons, Rogers Bros. dis 25%
Britannia, Parker's and Boardman's dis 25%
German Silver add 10% to list
" Wt. Iron Bolster Plates, 2¾ in. wide, per set 60c
" " " 3 " " 65c
" " " 3¼ " " 70c
" " " 3½ " " 75c
Wagon Brake Ratchets 10½c each
" " " finished with guard 45c each
Wrought rub irons 11c each
Clout and Finishing Nails 7½%
" " by the case dis 7½%

TRAPS.

Genuine Oneida—Newhouse list dis 15%
Imitation " " " dis 20%

WRENCHES.

Coes Genuine dis 30%
Coes Imitation Wrought Bar dis 40%
" " Malleable Bar 40&10%
Tafts Wrought Bar 60%
Tafts Malleable Bar 65%

WIRE.

No. 0 to 18 dis 20%
No. 19 to 26 dis 27½ @ 30%
No. 27 to 36 dis 33⅓ @ 35%
Coppered 0 to 12 dis 15 @ 20%
Tinned Broom Wire dis 15%
Bradlee & Co., Office Nos. 19 & 21 South Fourth st., Philadelphia. Price list of Proved and Warranted Chains. Discount ¾c. per lb.

SHORT LINK CHAIN.

Size. Inches.	Average Wt. Per Fathom. Lbs.	Proof. Tons.	Price Cts. Per Lb.
⅛	15	4	10½
9-16	19	5	10
5-8	25	6	9½
11-16	30	8	9·3
¾	35	10	8¾
13-16	40	12	8½
⅞	47	14	8⅛
15-16	54	16	8⅜
1	60	18	8¼
1 1-16	67	20	8⅛
1⅛	74	23	8
1 3-16	82	26	7⅞
1¼	90	28	7¾

All larger sizes same price as 1¼ inch.
Stud Chain 2½c. less than same size close link.

PITTSBURGH.

From the Pittsburgh Commercial.

FLAT BAR.

1½ to 4 by ⅜ to 1 inch 4·6c
4½ to 6 by ⅜ to 1 inch 4·8c
1¾ to 6 by 1⅛ to 1½ inch 5·0c
1¼ and 1⅜ by ⅜ to ¾ inch 4·8c
1 and 1½ by ⅜ to ¾ inch 4·9c
⅝, ¾ and ⅞ by ¾ to ⅞ 5·0c

HORSE SHOE.

All sizes 6·1c
Nail rods 8 5c

HEAVY BANDS.

3½ to 6 by ⅛ and 5-16 inch 5·2c
1⅝ to 3¾ by ⅛ and 5-16 inch 5·3c
⅞ to 1¼ by ⅛ and 5-16 inch 5·6c
⅛ to ¾ by ⅛ and 5-16 inch 5·8c

LIGHT BANDS.

3 to 6 by 3-16 to No. 12 5·6c
1⅛ to 2¾ by 3-16 to No. 12 5·8c
1 to 1¾ by 3-16 to No. 12 6 2c
⅛ to ⅞ by 3-16 to No. 12 6·8c

HOOPS.

2¼ to 3 inch 5·9c
3⅛ to 4¾ inch 6·1c
1¾ to 2 inch 6·1c
1¾ to 1 11-16 inch 6·4c
1⅛ and 1¼ inch 6·7c
1 inch 7·1c
⅞ inch 7·6c
¾ inch 8·1c
⅝ inch 8·6c
½ inch 9·1c

ROUND AND SQUARE.

1 to 1⅞ inch 4·6c
2 to 2¾ inch 4·9c
3 to 3¾ inch 5·1c
3¾ to 4 inch 5·6c
⅝ to 9-16 inch 5·0c
½ to 7-16 inch 5·3c
⅜ inch 5·4c
5-16 inch 5·8c
¼ inch 6·2c
3-16 inch 8·2c

OVAL IRON.

⅞ to 1¼ inch 5·2c
⅝ to ¾ inch 5·4c
½ inch 5·6c
⅜ inch 6·2c

HALF OVAL AND HALF ROUND.

⅞ to 1¼ inch 5·5c
⅝ to ¾ inch 6·0c
½ inch 6·7c
⅜ inch 8·2c

Sheet Iron,	Boiled.	Charc'l.	Juniata.
10 to 14	6·2	7·7	9·2
" " 15 to 20	6·4	7·9	9·4
" " 21 to 24	6·6	8·1	9·6
" " 25 to 26	6·8	8·3	9·8
" " 27	7·0	8·5	10·0

All cets over 28 in. wide, ₱ lb extra.

TANK IRON.

3-16, ¼ and ⅜ inches thick 6·0
Boiler Plate Iron 7·9
Heads not flanging 7·1
Heads flanging 8·9
Plow Slabs 6·8
Plow Wings 7·3

RAILROAD IRON—COUNTERSUNK AND PUNCHED.

1¼ by ¾, 7-16 and ½ inch 5·6
1¼ by ¼ and 5-16 inch 6·1
1½, 1¾ and 2 by ½ and ⅝ inch 5·1
1¼ by ⅜ inch 5·3

EXTRAS FOR CUTTING TO LENGTH.

Flat bars and rounds and squares 1c
Flat bars for tire 1c
Heavy bands 3c
Light bands and wagon box iron 4c
Hoops 5cc

TERMS.

Note or acceptance at sixty days, with currant rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within fifteen days of date of invoice. Payment to be made in New Bork exchange, United States Treasury notes, or their equivalent. No discount on bills of less than $50.

Heavy Hardware.

The following are the card rates of Lewis, Oliver & Phillips:

Iron, standard list, assorted sizes, for large orders, 4·6c, card rate, 2% off net.
Iron wedges 7½c ₱ lb net
Norway Nail rods 9¾c ₱ lb net
Fence Pickets—
¾ round, bent to shape... 40c ₱ ft. fence, less 10% Discount off Standard List.
Carriage and tire bolts, 60% off net
Plow bolts 15% off net
Stove bolts list net
Machine and square head bolts new list... 15% off net
Coach and lag screws, new list 15% off net
Bolt Ends, new list 15% off net
Square and hexagon nuts and washers, new list 2¾c ₱ lb off net
Washers new list, 4c ₱ lb off
1c. ₱ lb extra for less than 1 keg of each size.
Harrow teeth, in lots of 1 ton or more, 1 in. diam 6c; ¾ & ⅞ in. diam. 6c; ⅝ in. diam. 6¼c ₱ lb.
Patent Headed Harrow Teeth, packed in casks ½c extra ₱ lb net.
Skein bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 9¼c; 9-16 in. diam. 10½c; ½ in. diam. 11¾c.
1c. ₱ lb extra when less than 1 keg of each size is ordered.
Screw Hook-and-Eye Hinge, ¾ to 1in. diam. 10¾c; ⅝ in. diam. 11¾c; ½ in. diam. 13¾c ₱ lb, net.
Screw and Strap Hinges, in lots of 50 pairs or more, 14 to 36 in. long, 8c; 8, 10 and 12 in. long, 9½c ₱ lb net.
Strap and T Hinges net list
6 months purchases over $1000, 5% dis. allowed.
Screw hitching rings $7 50 ₱ 100 net
Duck nest tuyere irons $17 00 ₱ doz. net
Cast iron washers 5¾c ₱ lb net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 feet long ₱ lb 6c
1 to 2 in. diam. from 4 to 8 feet long 6½c
1 to 2 in. diam., from 1½ to 4 feet long 7c
⅝, ¾ and ⅞ in diam., over 4 feet long 7¾c
⅝, ¾ & ⅞ in diam., from 1½ to 4 feet long 7¾c

WAGON HARDWARE.

Wagon Box Strap Bolts—

10 in. long by 7-16 at screw end,			₱ set of 8 bolts			55c
12	"	½	"	" 8	"	70c
12	"	⅝	"	" 8	"	$1 00
14	"	¾	"	" 8	"	1 10
16	"	¾	"	" 8	"	1 20

5 cts. ₱ set for each additional inch over 14 inch. by ⅛. All lengths made.
Wagon Box Rods, narrow track each 18c
Wagon Box Rods, wide track, each 20c
Single Tree Irons, per set of four pieces 38c
Wt. Iron Bolster Plates, 2¾ in. wide, per set 60c
Sad Irons 5½c ₱ lb net
Kettles—Brass ₱ lb, 52½c
Enameled dis 30%
Knives, Drawing—Oval No. 1 dis 60 @ 60 & 5
Razor Blade dis 37½ & 20%
Wrought Hammer Straps, heavy pattern.. 16c each
" " " light pattern.. 13½c each
Stay Chain Hooks 8c each
Single Tree or End Clips each 9c
Double or Center Clips, light each 10c
" " " " heavy each 12c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 set... 15% dis.
Wagon Box Staples, 1½ to 2½ in. to clinch per 1000, $16 50 net
Wagon Box Staples, Box Iron, to rivet on, per 1000, $11 50 net
Neck Yoke Eyes, each 5¼c net
Neck Yoke Eyes, with ⅜ inch rings 8¼c net
King Bolts, ⅞, 1, 1⅛, and 1¼ in. diam. ₱ lb.. 6c
Wagon Rivets, ex. large, oval and steeple head, ½ in. diam., all lengths, ₱ lb 11½c
Wagon Rivet, 3-16 inch diam., all lengths 13½c
Wagon Rivets & nails in 5 lb paper boxes, ₱ lb ex 1c
Wagon and Hinge Nails, ₱ lb net 17½c
Coupling Plates } 10c ₱ lb net
Double Tree Plates }
Tongue Plates }
Neck Yoke Plates ₱ lb 13c
Tongue Cap Iron, 1¼, 2 and 2½ in. wide, same price ₱ lb as Band Iron.
Wagon Chains, Stay Lock and Tongue 5-16 in., 13½c; ¼ in., 14½c.

Nails, Brads, Spikes, etc,

CUT NAIL LIST.

10d to 60d nails, fence, and brads $5 50
8d and 9d nails, fence and brads 5 75
6d and 7d nails, fence and brads 6 00
4d and 5d nails, fence and brads 6 25
3d nails, fence and brads 7 00
2d nails, fence and brads 8 25

TOBACCO.

FINE BLUED.		BARREL.	
3d	$8 25	1⅛ inch	$6 25
2d	9 25	1⅜ inch	6 50
LINING.		1¾ inch	7 00
7-8	10 00	1⅞ inch	7 25
CASING.		1 inch	8 00
10d to 50d	6 25	⅞ inch	8 50
8d	6 50	**FINISHING.**	
6d	6 75	10d to 50d	6 75
4d	7 00	8d	7 00
		6d	7 25
		4d	7 50

Cut spikes, all sizes 5 75
Cut boat spikes 6 25
Clinch nails, all sizes 6 25

TERMS.—Sixty day's time, or two per cent. discount if remitted within ten days from date of invoice. Prices subject to changes in market without further notice.

LENGTH OF NAILS.

2d, 1 inch; 3d, 1¼ inch; 4d, 1½ inch; 5d, 1¾ inch; 6d, 2 inch; 7d, 2¼ inch; 8d, 2½ inch; 9d, 2¾ inch; 10d, 3 inch; 12d, 3¼ inch; 16d, 3½ inch; 20d, 4 inch; 30d, 4½ inch; 40d, 5 inch; 50d, 5½ inch; 60d, 6 inch.

BOSTON.

Corrected by Fuller, Dana & Fitz, 110 North St., Boston, Importers and Commission Merchants.

Tin Plates.

I. C. Charcoal	per box	@ 14 00
" Coke	"	@ 13 00
" Terne	"	@ 12 50

Metals.

Pig Tin, Banca, gold	per lb.	37½c
" Straits, "	"	31½c
" English, "	"	31½c
Copper, Sheathing	"	43c
" yellow	"	33c
Copper Bolt	"	45c
" Braziers	"	45c
" Ingot	"	37c
" Old	"	
Lead, Spanish Pig, gold	"	6¾c
" Sheet and Pipe	"	9·45c
" Old	"	6¾c
Spelter, Silesian, gold	"	7¼c
" American, "	"	6½c
Zinc, Sheet	"	10¾c

Iron.

Sheet Iron, Russia, gold	per lb.	18c
" English	"	7c @ 7½c
" American	"	8c
" Galvanized	"	11c @ 13c
Swedes Bar Iron, Flat, gold, per ton,		$135 00 @ $145 00
" Shoe Shapes, " "		150 00 @
Norway Bar Iron, Flats, " "		135 00 @ 145 00
Norway Shapes, gold, per ton,		150 00 @
Norway R'd, 2 in. to ¾ in. gld. pr. ton		140 00 @
" " 11-16 to ⅞ in. " "		157 50 @
" " 5-16 to ½ in. " "		160 00 @
" Nail Rods, Roll'd " "		172 50 @
" " U B. " "		167 50 @
" " Benzon " "		162 50 @
" " Vasa, " "		157 50 @
" " Ne " "		152 50 @
English Refined Bar Iron,	"	100 00 @
Scotch Pig Iron,	"	52 00 @ 55 00
American "	"	45 00 @ 52 00
Wrought Scrap Iron,	"	42 00 @ 45 00

Steel.

English Tool Steel, gold	per lb.	16c.
" Machinery Steel, gold	"	10c.
American Tool "	"	16c.
" Machinery "	"	11c.
Bessemer Steel	"	8½ @ 9½c
German "	per lb.	10½c.
Spring Steel	"	9c.
Tire "	"	8c.
Sleigh Shoe Steel	"	6¾c.
Toe Calk "	"	8¾c.

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

Jan. 2d, 1873.

Axes, Chopping—Blood's	$12 50 @ 14 50
Augers—C. S. cut	dis 3 %
Bits, Auger—Pierce's	25 %
Jennings'	dis 10 %
Bells, Cow—Yaw's Genuine	net
Bells, Hand	dis 50 @ 50&10 %
Bellows—Smiths'	dis 15 @ 20 %
Moulders'	dis 10 %
Bolts—Carriage and Tire, dia. neck	dis 60 & 10 %
Bracee, Bit—Barber's	dis 30 & 10 %
Spofford's Patent	dis 37½ %
Brads, Cut	dis 50 @ 50&7½ %
Boards—Stove, Brooks' Patent, new list	dis 30 %
Buckets—Well	per doz $6 00
Butts—Brass	dis 25 %
Cast Loose Joint	dis 40 %
" " Pin	dis 30 %
" " Japanned	dis 30 %
" " Silver Tipped	dis 20 %
Wrought Narrow	net
" Broad, Loose Joint	dis 15 %
" Table and Back Flaps	net
Belting—Rubber	dis 30 @ 33⅓ %
Leather, new list,	dis 30 @ 30 & 5 %
Beaters, Egg, "Peerless"	per doz $4 00
Brick—Bath (box of 2 doz) Best English	$1·50
"Rutherford"	$1 25
Bung Borers—"Enterprise"	dis 20 %
Chalk—White, Carpenter's	per gross, 50c
Blue, Carpenter's	" 85c
Crayon School	" " 14c
Chisels—Firmer Socket	dis 60 @ 60 & 5 %
Framing Socket	dis 60 @ 60 & 5 %
Corner Socket	dis 60 @ 60 & 5 %
Slick's Carpenters'	dis 60 @ 60 & 5 %
Castings—Malleable	₱ lb, 11c
Cutters, Meat—Hale's Patent	dis 10 %
Cherry Seeders	per doz $9 00

Elbows—Corrugated	5	5¼	6	7	
Charcoal	$4·25	5·25	5·25	6·50	dis 10 %
Russia	10·00	13·00	13·00	14·00	

Faucets—Wood, Cork Lined dis 50 @ 50&10 %
Files—Wheeler, Madden & Clemson's dis 42½ %
Freezers, Ice Cream—"Champion" dis 33⅓ %
Gates—Molasses—
Patent Self-Measuring ₱ doz. $43 00; dis 20 %
Hinges—Window Blind dis 30 %
"Standard" "Shepard's" dis 30 %
Wrought Strap and T list net
Hods, Coal—Plain, Black and Galvanized new list net
Funnel, Black and Galvanized new list net
Fancy and Helmet new list net
Hammers—Maydole's net
Yerkes & Plumb's dis 5 @ 10 %
Hatchets—Blood's net @ 5 %
Hooks and Staples—Wrought 50&10 @ 60 %
Hooks—Belt dis 45&10 %
Hasps and Staples—Wrought dis 50&10 %
Sad Irons 5½c ₱ lb net
Kettles—Brass ₱ lb, 52½c
Enameled dis 30 %
Knives, Drawing—Oval No. 1 dis 60 @ 60 & 5
Razor Blade dis 37½ & 20 %
Lanterns "Peerless". No. 1 5 10
₱ doz $26 00 $12 50 $15 00 dis 10 %
"Radiant" 75 100 150 175
₱ doz $13·13 13·13 22·50 22·50 dis 20 %
Knobs—Door, R. & E. Mfg Co dis 20 @ 25 %
Locks—Door, R. & E Mfg. Co dis 20 @ 25 %
Machines—Apple Paring, Turn Table $8 50 ₱ doz
" " Lightning
Tinmen's
Doweling, Merchant's, No. 1 " 4 75
" " No. 2 " 5 00
Mills, Coffee—Box and Slide, common dis 10 %
Box Union and Eagle dis 5 %
Swift's Patent dis 10 %
"Champion" dis 20 %
Nails—Cut, Chesapeake $5 00 rates
Clout and Finishing list @ dis 7½ %
Shoe list @ dis 7½ %

Horse, Ausable No.	5	6	7	8	9	10
	30	27	25	24	23	22c
" " 1000 lbs						dis 5 %
" Clinton No.	6	7	8	9	10	
	23	21	20	19	18c	

Packing—Rubber dis 30 @ 33⅓ %
Pencils, Slate—Soapstone 4 5 6 in.
50 40 50c. per 100
Case lots dis 20 %
Paint—White Lead, U. S. Gov't ₱ lb 9½c
Rivets—Iron, Black and Tinned dis 20 @ 25 %
Copper 5 @ 10 %
Rope—Manila, ½ inch and larger ₱ lb 18c
Rules—Boxwood and Ivory dis 40&10 %
Staples—Blind, Boardman's Pat., ½ & ⅝ ₱ lb 37c
Skates—White's dis 20 %
Straps, Skate—Russet and Black net @ 20 %
Spoons—Iron Tinned dis 10 %
" " by the case dis 20 %
Plated Rogers' A No. 1 dis 25&5 %
Squares—Steel and Iron nst net
Shoes, Horse—H. Burden & Sons ₱ keg $7 00
Shovels & Spade—Shepard, Forsyth & Dennison net
Saws—Henry Disston & Sons dis 5 %
Scales—Buffalo Scale Works dis 25 %
Fairbanks dis 15 %
Screws—National Screw Co. { Iron dis 50 % / Brass dis 40 %
Shears—Sevmour's dis 50 %
Tools—Tinmen's
Traps, Steel—Newhouse dis 17½ %
Tacks—Half Weight Am. Iron dis 70 @ 70&7½ %
Vises—Parallel, Buffalo dis 15 %
Wrenches—Coes' genuine dis 25 %
Coes' Imitation dis 45 & 10 %
Tafts' Pattern dis 62½ &10 %
Ware—French, Tinned and Iron dis 20 %
Stamped and Japanned net
Cast Iron Hollow dis 20@30 %

METALS.

Tin Plates, Charcoal IC.

10x14	$13 25
12x12	13 75
12½ x 17	12 75
14x20	14 25
14x20 terne	12 00
20x28 "	27 00
Add for each X	2 50
Pig Tin—Straits	40 @ 41c
Banca	47 @ 48c
Solder No. 1 No. 2	50 lbs. deduct ½c
24c 22c	100 " " 1c

Sheet Zinc, "Lasalle," 1000 500 100 lb casks
$10 75 $10 85 $11 05 ₱ 100 lbs
Iron Wire—Bright and annealed dis 10 @ 20 %
Coppered dis 5 @ 15 %
Tinned dis 5 @ 15 %
Tinned Broom Nos. 20 to 22 ₱ lb 16½c
Copper—Sheathing 14@18 oz ₱ lb 43c
Planished ₱ lb 49 @ 51c
Bottoms ₱ lb 45c
Bolts ₱ lb 45c
Braziers' Sheets ₱ lb 45c

Sheet Iron—W. D. Wood & Co.'s Smooth Char.			Jun
Nos. 10 to 14	6·45	7·95	9·65c
Nos. 15 to 20	6·95	8·35	9·85c
Nos. 21 to 24	7·15	8·55	10·05c
Nos. 25 & 26	7·35	8·75	10·25c
No. 27	7·55	8·95	10·45c
Am. Russia		A.	B.
		14½c	12½c

Gen. Russia, No. 1 stained 19c
" " clean 20c
Galvanized dis 20 %

CHICAGO.

Reported by Markley, Alling & Co., Dec. 1872.

AUGERS AND BITS.

Ives', extra C. S. dis 20 %
Jenning's net list
Cooks' dis 25 %
Snell's dis 7½ %
Snell's Car Bits net list

AXES.

Amoskeag Yankee ₱ doz $13 50
" Crescent " 14 00
Hunt's Yankee " 14 50
Kennebeck Yankee " 12 00
Lippincott " 12 50
" Crown " 13 00
" Beveled " 13 00
Jefford's Silver Steel " 13 00
Red Warrior, Beveled " 14 00
Kennebeck, Handled " 15 00
Boy's, Handled " 12 00

BOLTS.

Carriage and Tire dis 50&20 %
Cast Barrel and Shutter dis 20&10 %
Wrought Iron Barrel add 10 %
" " Square net list

BUTTS.

Cast Fast Joint, Narrow dis 10 %
" " Broad dis 20 %
" Loose Joint dis 35 %
" " Pin, Reversible dis 25 %
" " Japanned dis 25 %
" " Silver Tipped dis 25 %
Wrought Narrow, Fast Joint net list
" Broad, Fast Joint dis 15 %
" " Loose Joint dis 15 %
" Loose Pin dis 15 %
" Table net list
" Brass dis 15 %
Garretson's Blind Butts, Wood doz sets $2 00
" " " Brick doz sets 3 00
Parker's " " Wood doz sets 2 25
" " " Brick doz sets 3 25

CASTERS.

Iron Plate dis 20 %
Brass Wheel Plate dis 20 %
Porcelain Wheel Plate dis 20 %
" " Bed dis 20 %
Iron Wheel Bed dis 20 %

CHISELS.

Butcher's Tanged Firmer dis 30 %
" Long Paring dis 30 %
Witherby Socket Framing dis 50&15 %
" " Firmer dis 50&15 %
" " Corner dis 50&15 %
" " Slicks dis 50&15 %

COFFEE MILLS.

Box 4 Iron $ 3 75
" 103 " 5 25
" 102 " 7 50
" 107 Britannia 7 50
" 106 " 9 25
" 25 Union 11 00
" 35 " 13 00
" 75 Cast Steel 11 00
" 85 " 13 00
Side 50 4 75
" 60 5 75
" 70 7 25
" 90 18 00
" 15 Union 7 00
" 20 " 8 00

CUTLERY.

American Table dis 20 %
" Pocket dis 25 %

DOOR SPRINGS.

Torry ₱ doz $7 50
Rubber " 4 00
Boon's " 5 00

DRAWING KNIVES.

Witherby Tool Co dis 50&15 %
Ohio Tool Co net list

FILES.

Butcher's $7 00 £
Nicholson's $5 00 @ $5 50 £

HAMMERS.

Maydole's net list
Yerks & Plumb net list
Cheney net list

HANDLES.

Extra Axe ₱ doz $3 00
No. 1 Axe " 2 25
No. 2 Axe " 2 00
R. R. Pick, No. 1 " 2 00
Coal " " " 2 00
Sledge, No. 1 " 2 00
Hatchet " 65
Hammer, A. E. " 65

HATCHES.

Amoskeag Shingling, No. 1 ₱ doz $7 25
" No. 2 " 8 00
" No. 3 " 8 25
" Claw, No. 1 " 7 75
" " No. 2 " 8 50
" " No. 3 " 9 25
" Lath, No. 1 " 7 50
" " No. 2 " 8 25
" " Solid Steel " 12 00

HINGES.

Strap and T dis 5 %
Screw Hook and Strap, 8 to 12 in net, 10c ₱ lb
" " 14 to 24 in net, 9c ₱ lb
Hook and Eye Hinge net 12c @ 16c ₱ lb
Gate, No. 35, State ₱ doz $3 75
" No. 3, In and Out " 2 50
" Flinn's Pat " 7 50

HORSE NAILS.

Northwestern, 8d 21c
Ausable, 8d 21

KETTLES.

Brass net list
Enameled dis 15

LOCKS AND KNOBS.

Norwalk Lock Co dis 20
Branford " dis 20
Eagle " dis 15
American Pad Locks dis 2
Continental Lock Co dis 10

MEAT CUTTERS.

Haven's Patent net list
Hale's " dis 40
Woodruff " net list
Stowe's Sausage Stuffers net list

MOLASSES GATES.

Stebbin's Patent dis 50
Enterprise " dis 5

OIL STONES.

Washita No. 1 net 35c ₱ lb
" Slips net 65c
Hindostan No. 1 net 9c
" Axe net 10c
" Slips net 15c

PICKS AND MATTOCKS.

Picks, Railroad, Axe Finish ₱ doz, $13 00
" Coal, Axe Finish " 10 00
Mattocks, L. C., Axe Finish " 10 00
" S. C. " 15 50
Grub Hoes, Axe Finish, No. 2 " 12 00

PLANES.

Ohio Tool Co. Bench dis 10
Sciota dis 15
A. Howland & Co. French dis 12
" " Fancy dis 10
Bailey Patent Iron dis 15
Plane Irons, Butcher's dis 50

RIVETS.

Iron dis 10 @ 15
Tinned dis 10 @ 15
Copper, No. 7 net, ₱ lb, 60c

RULES.

Stanley Rule and Level Co dis 30
Hubbard & Curtiss Mfg. Co dis 30

SAD IRONS.

Best A No. 1 ₱ lb, net, 5¾c
" Copper Face Star 6c

SANDPAPER.

Wiggin & Stevens, No. 0 to 1½ ₱ ream, net, $4 50
" " No. 2 to 3 " " 5 00

SASH LOCKS.

Champion ₱ gross, net, $12 00
Hopkins & Dickinson dis. 10
Judd's Patent dis. 10
Corbin's Patent dis. 10
Clark's " dis. 20

SAWS.

H. Disston & Sons dis 5
Champion X Cut ₱ foot, net, 60c
M. A. & Co. X Cut " " 50c

SCREWS.

American Screw Co.—Iron dis 45&5
" " —Brass dis 25
" " —Blued Rd. Head dis 25

SHOVELS AND SPADES.

Ames' Black Shovels ₱ doz, $15 00
" Polished " " 16 00
" Patent " " 18 00
Alling " " 15 00
" " " Moldens' " 18 00
Crane's Black " " 12 00
" Polished " " 13 00
Smith's " " B. S. L. H. Rd. Pt. " 13 50
" " " B. S. D. H. Rd. Pt. " 14 00
Ames' Black Spades " 16 50
" Polished " " 17 50
" Patent " " 18 00
Alling " " 15 50
Crane's Black " " 12 50
" Polish'd " " 13 50

SCOOPS.

Alling Steel Polished, No. 2 ₱ doz, $14 00
" " No. 3 " 14 50
" " No. 4 " 15 00
" " No. 5 " 16 00
" " No. 6 " 17 00
" " No. 7 " 18 00
" " No. 8 " 19 00
" " No. 10 " 22 00
Crane's Polished, No. 5 " 14 00
" " No. 6 " 15 00
" " No. 7 " 16 00
" " No. 8 " 17 00
Crane's Black Coal, No. 4 " 18 00
" " No. 5 " 18 50
Preston, Black Scoops No. 1 ₱ doz $12 00
" " " " 2 " 12 50
" " " " 3 " 13 00
" Half Pol. Scoops No. 1 " 13 00
" " " " 2 " 13 50
" " " " 3 " 14 00
Lippincott, Half Pol. No. 2 " 16

Steel.

THREE 1st CLASS PRIZE MEDALS. CLASSES 1, 21, 22, Great Exhibition of Industry, LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1ª UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

SUCCESSORS TO

SAML. COCKER & SON,

(Established 1752.)

SHEFFIELD. ENGLAND

MANUFACTURERS OF

CAST, SHEAR, SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.
BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES;
Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS,
HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS,
FISH HOOKS, NEEDLES. &c.

ALSO

GENERAL MERCHANTS.

Agent, **JONATHAN HATTERSLEY**, Cincinnati, Ohio

WM. JESSOP & SONS,

MANUFACTURERS OF

STEEL,

AND IMPORTERS OF IRON,

SHEFFIELD, ENGLAND.

PRINCIPAL DEPOTS:

NEW YORK, Nos. 91 and 93 John Street.....BOSTON, Nos. 133 and 135 Federal Street.

AGENCIES:

PHILADELPHIA, Jas. C. Hand & Co .....PROVIDENCE, Cornett, Nightingale & Co.
CHICAGO, Crerar, Adams & Co.....ST. LOUIS, Henry Bakewell & Sons.
CINCINNATI, Augustus Wessel.....NEW ORLEANS, Folger & Co.
SAN FRANCISCO, Russell & Erwin Manufacturing Co.

F. W. MOSS,

Successor to **JOSHUA MOSS & GAMBLE BROTHERS,**

MANUFACTURER AND IMPORTER OF

STEEL AND FILES.

Principal Depots: 80 John Street, New York, and 512 Commerce Street, Philadephia.

MOSS & GAMBLE **SUPERIOR C. S.** "FULL WEIGHT" **FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES, and all kinds of MACHINISTS' TOOLS.
Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.
Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.
English Spring and Plow Plate Steel.
Also, manufacturer of

Sheet Cast Steel, Shear, German, Round Machinery, Hammer, Fork and Shovel Steel

And GENERAL MERCHANT.

A. M. F. WATSON, General Agent.

WILSON HAWKSWORTH, ELLISON & CO.,

MANUFACTURERS OF

STEEL, STEEL WIRE, &C.,

AND GENERAL MERCHANTS,

CARLISLE WORKS, SHEFFIELD, ENGLAND.

AGENCIES:

New York, 72 John Street.
Philadelphia, 505 Commerce Street.
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BARROW HÆMATITE STEEL COMPANY

LIMITED.

BARROW IN FURNESS,

LANCASHIRE, England

MANUFACTURERS OF

STEEL RAILS, TYRES, WHEELS,

Axles, Shafting, Boiler and Ship Plates, Bessemer Pig Iron, &c., &c.

CHAS. CONGREVE & SON,

SOLE AGENTS FOR THE U. S.,

104 and 106 John Street, opposite Cliff Street, NEW YORK.

J. & RILEY CARR,

MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for

SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

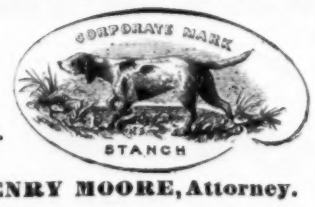
DOG BRAND FILES,

Unsurpassed, if equaled, in quality.

Bailey Lane Works, Sheffield, England.

Warehouse, 82 John St., New York.

Established 1810.



HENRY MOORE, Attorney.

Steel.

SANDERSON BROTHERS & COMPANY,

(LIMITED)

MANUFACTURERS OF THE

CELEBRATED CAST STEEL,

WARRANTED MOST SUPERIOR FOR TOOLS.

DARNALL WORKS,
ATTERCLIFFE FORGE,
WEST STREET WORKS, } SHEFFIELD, ENGLAND.

IMPORTERS OF FILES,

AND

AGENTS FOR ARMITAGE'S GENUINE MOUSEHOLE ANVILS.

NEW YORK, Edward Frith, 16 Cliff.
BOSTON, H. L. Richards, 18 Batterymarch.
PHILADELPHIA, Wm. H. Sowers.
CLEVELAND, O., Cleveland, Brown & Co.
NEW ORLEANS, Rich'd Rhodes, 71 Camp.
BALTIMORE, Md., Wm. H. Cole.
MONTREAL, Saint Paul St.
NEW HAVEN, Ct., Atwater, Wheeler & Co.

FRANCIS HOBSON & SON,

97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear

STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

SHEFFIELD, ENGLAND.

Office of S. & C. WARDLOW, 13 Gold Street, New York.

In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

G. SANDERSON & CO.,

Manufacturers of all descriptions of

STEEL.

Bailey Street and Broad Lane Steel Works, } **SHEFFIELD, ENGLAND.**

Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills, &c.**

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

☞ *Makers of the Celebrated ROCK BORING DRILL STEEL.*

Warehouse, 96 John Street, New York.

A. J. NELLIS & CO., Pittsburgh, Pa.

MANUFACTURERS OF

Agricultural Steels and Irons

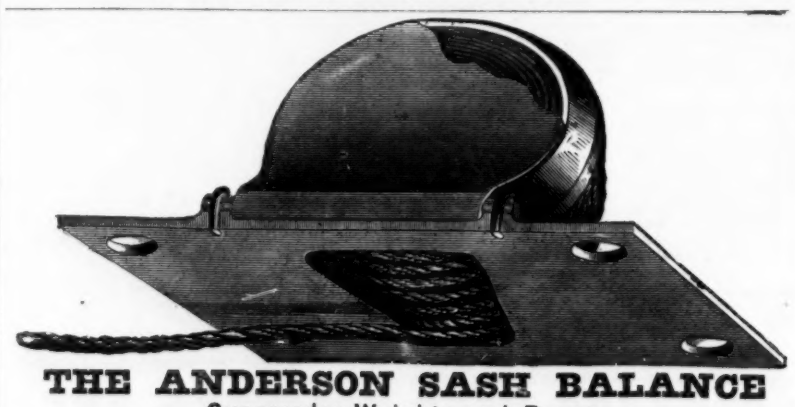
OF ALL KINDS AND SIZES. BEVELED, BOLTED, FINISHED AND TEMPERED TO SUIT ALL KINDS OF SOIL.

Nellis' Original Harpoon Horse Hay Fork Improved.

Nellis' Grapple & Pulleys.

☞ Send for Pamphlet.

With the exception of our Horse Hay Fork and Fixtures we make no complete Implement. Agricultural Steels and Irons we make a specialty. From the universal approval our goods have secured by actual test in the hands of Implement Makers and Farmers from the Atlantic to the Pacific, and with our facilities, experience and improvements, we frankly assure the Trade of our ability to meet the requirements of the age. All of our Steel Goods have imprint of our Trade Mark.



THE ANDERSON SASH BALANCE

Supersedes Weights and Boxes.

Is a perfectly even Balance at all points. Is **Neat, Simple, Durable** and **Cheap.** Can be placed in any window at any time. Is noiseless and obeys the slightest touch. Is easily applied and will not get out of order. Facilitates cleaning of windows. Recommends itself.

Anderson Balance Manufacturing Co.,

Twenty-Ninth and Railroad Streets, PITTSBURGH, PA.

To be seen at No. 70 Smithfield Street.

Steel.

Sheffield Steel Works,

(Established in 1848.)

SINGER, NIMICK & CO.

Pittsburgh, Pa.,

Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel,

Elliptic and Side Springs, Seat Springs,

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, Crow Bars, &c., &c.

Warehouse, 83 Water and 100 First Streets.

ISAAC JENKS,

Minerva Iron & Steel Works,

Wolverhampton, England,

MANUFACTURER OF

"Jenks' Spring Steel," and Cast Spring Steel,

Also, TIRE, TOE CORK, SLEIGH SHOE, BLISTER AND PLOW STEEL.

VAN WART & McCOY,

SOLE AGENTS,

43 Chambers St., New York.

A full assortment of "Jenks' Spring Steel," in stock.

MILLER, BARR & PARKIN,

Crescent Steel Works,

PITTSBURGH, PA.,

Manufacturers of all descriptions of

STEEL

EQUAL TO ANY IN THE MARKET.

Office.....339 Liberty St.,

PITTSBURGH, PA.

Gunpowder.

GUNPOWDER.

DUPONT'S

Sporting, Shipping, and Mining

POWDER.

DUPONT'S GUNPOWDER MILLS,

ESTABLISHED IN 1801,

Have maintained their great reputation for 70 years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle and Diamond Grain Powder.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER

of all kinds and descriptions.

For sale in all parts of the country. Represented by

F. L. KNEELAND,

70 Wall Street, NEW YORK.

GUN-POWDER

LAFLIN & RAND POWDER CO.,

21 Park Row, New York,

invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

POWDER

IN EVERY PART OF THE UNITED STATES, from having agencies and magazines at all prominent points, beside our works at

Newburg, Saugerties, Kingston, and Catskill, N. Y.; Scranton, Carbondale, and Pottsville, Pa.; Baltimore, Md., and Platteville, Wis.

The superiority is well known of our brands Rifle Powder:

Orange Rifle, *Orange Ducking*
Lightning, *Audubon.*

SAFETY-FUSE at wholesale.

FORT PITT STEEL WORKS

Steel.

HUSSEY, WELLS & CO.

MANUFACTURERS OF ALL DESCRIPTIONS OF

CAST STEEL,

INCLUDING

Best Refined Steel for Edge Tools.

PARTICULAR ATTENTION PAID TO THE MANUFACTURE OF STEEL FOR

Railroad Supplies, Homogeneous Plates

FOR LOCOMOTIVES, BOILERS AND FIRE BOXES,

Smoke-Stack Steel, Cast Steel Forgings for Crank Pins, Car Axles, &c.

ALSO, MANUFACTURERS OF THE CELEBRATED BRAND

"Hussey, Wells & Co. Cast Spring Steel,"

For Elliptic Springs for Railroad Cars & Locomotives.

PENN AND SEVENTEENTH STS., PITTSBURGH, PA.

BRANCH OFFICES:

30 Gold St., New York. 139 & 141 Federal St., Boston. 88 Michigan Ave., Chicago.

Pittsburgh Steel Works

ESTABLISHED IN 1845.

ANDERSON & WOODS,

MANUFACTURERS OF

BEST REFINED CAST STEEL,

Cast and German Plow and Spring Steel,

FIRST AVE., AND ROSS ST., PITTSBURGH.

BRANCH HOUSES:

Nos. 74 and 75 North Street, Boston. C. H. WHITNEY & SON, 142 Greenwich Street, New York.
W. F. POTTS, SON & CO., 1225 Market Street, Philadelphia.

First Prize awarded at Fair of American Institute, 1870.

CHROME STEEL COMPANY,

MANUFACTURERS OF BEST

CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

Works and Offices—Kent Avenue and Keap Street, Brooklyn, E. D.

W. W. W. WOOD, President. C. P. HAUGHIAN, Superintendent.

JOHN A. GRISWOLD & CO.,

Troy, N. Y.

J. A. GRISWOLD. E. CORNING. E. CORNING, Jr. C. GRISWOLD.

PROPRIETORS OF THE

Rensselaer Iron Works, Fort Edward Blast Furnace,
Bessemer Steel Works, And Columbia Blast Furnace.

MANUFACTURERS OF

Pig Iron, Railroad Iron, Merchant and Ship Iron,

BESSEMER STEEL RAILS, AXLES, TIRES, SHAFTING,

PLATES AND STEEL FORGINGS OF ALL DESCRIPTIONS.

New Jersey Steel and Iron Company.

Trenton, N. J.,

Represented by COOPER, HEWITT & CO., 17 Burling Slip, New York,

MAKERS OF

ROLLED IRON BEAMS.

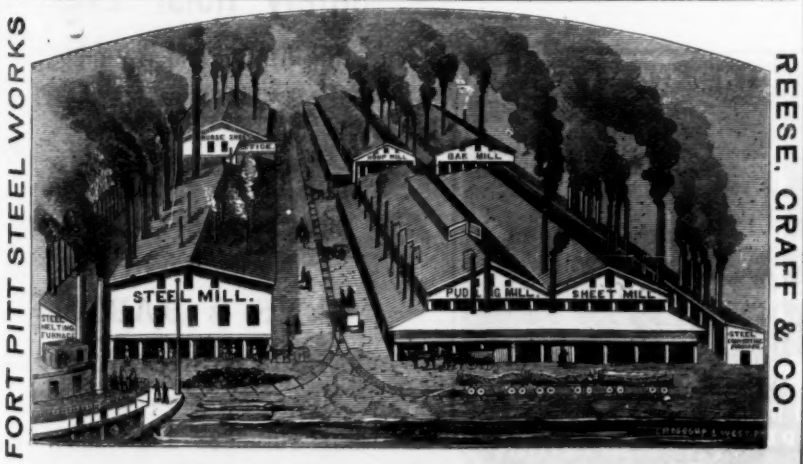
Channel Bars, the Trenton Steel Top Rails, &c., &c. Refined Iron, Brazier and Wire Rods.

ALSO,

THE MARTIN STEEL,

For Machinery Uses and Fire-Box Plates.

FORT PITT STEEL WORKS



REESE, CRAFF & CO.

Pittsburgh, Pa.

DESIGNING AND ENGRAVING ON WOOD

52 JOHN ST. H. R. WHITE NEW YORK.

Chicago Metal Market.

(Reported by Cragin Bros. & Co., 141, 143 & 145 Lake street.)

CHICAGO, Dec. 2, 1872.

TIN PLATE.

IC, 10x14, Coke	$13 00
IC, 10x14, Charcoal	14 00
IX, 10x14 "	17 00
IC, 12x12, Coke	
IC, 12x12, Charcoal	14 50
IX, 12x12, "	17 50
IC, 14x20, Coke	
IC, 14x20, Charcoal	15 00
IX, 14x20, "	18 00
IXX, 14x20, "	21 00
IXXX, 14x20, "	24 00
IXXXX, 14x20 "	27 00
IX, 14x14, "	28 50
DC, 100 Plate, "	14 00
DX "	17 00
DXX, "	20 00
DXXX, "	23 00
IC, 14x20, Coke Roofing	13 50
IC, 14x20, Charcoal Roofing	16 00
IX, 14x20, "	29 00
IC, 20x28, "	34 00
IX, 20x28, "	

PIG TIN.

Large, 60 lb	40c
Small, 30 lb	41c
Bar Tin	42c

ZINC.

In casks 1000 lbs	11c
" 500 "	11½c
In sheets	11½c
Slab	9c

COPPER.

Copper Bottoms	48c
Sheathing Copper	43c
Planished Copper 14x48	51c
Size, 14x52, 14x56, 14x60 { Nos. 7 8 9 } Plainshed Copper	53c

BRAZIERS' SHEETS, 30x60.

6 to 8 lbs	53c
10 and 12 lbs	50c
15 to 100 lbs	47c
Ingot Copper	
Bolt Copper	50c

SOLDER.

Fine, C. B. & Co.'s Brand	25c
Ordinary	23c
Plumbers' Solder, No. 1	23c
" 2	21c
ANTIMONY	
BABBITT METAL	15c to 25c
GALVANIZED IRON Conductor Pipe, per lb	12c

SHEET IRON.

	Common.	Smooth.	Charcoal.
No. 14 to 24	7¼c	8c	9½c
25 & 26	7½c	8¼c	9¾c
27	7¾c	8½c	10c

Add ¼c per lb for 30 in. wide.

GALVANIZED IRON.

No. 16 to 20	15c
" 21 to 24	16c
" 25 & 26	17c
" 27	18c
" 28	20c

Discount, 15 per cent.

RUSSIA IRON.

Perfect, all numbers	20c

In sheets, 1c. higher.

AMERICAN RUSSIA.

A	
B	

In sheets, 1c. higher.

BRAZIERS' RODS.

¼ inch, 10 ft. long, per lb	8c
3-16 " " "	10c

LEAD.

Pig	9c
Bar	10c
Lead Pipe, in full coils	11c
" " when cut	11½c
Sheet Lead	11c

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers of Metals, No. 214, 216 and 218 Main street.

TIN PLATE.

I. C. 10x14 Charcoal	$14·00 @ 15·00
I. C. 10x14 best Coke	13·50 @ 14·50
I. C. Terne, 14-20	12·00 @ 13·50
I. C. " 20-28	28·00 @ 29·00
I. C. Continuous	27·00

METALS.

Pig Tin, Banca	none in town
" Straits	40c
" English	41c

SOLDER.

S. & Co	₱ lb 27c
A 1	" 25c
Roofing	" 24c

LEAD.

Pig	₱ lb 7¾c @ 8c
Bar	" 8¾c @ 9c

COPPER.

Ingot	none in town
Planished	₱ lb 51c @ 54c
Sheathing	" 46c @ 48c
Bolt	" 45c
Brazier, 6 to 9 lb	" 51c
" 10 to 14 lb	" 48c
" 14 to 100 lb	" 45c
Copper Bottoms	" 48c

ZINC.

Cask, 500 to 1000 lbs	₱ lb 11¼c @ 11¾c
Case, 100 lbs	" 11½c @ 12 c
Slab	" 7½c @ 9 c

BRASS.

Roll, No. 6 to 30	₱ lb 45c
" " 30 to 38	" 50c
" " 38 to 40	" 65c
Wire " 0 to 20	" 50c
" " 20 to 25	" 60c

BABBIT METAL.

Sellew & Co	₱ lb 35c
Black Lead	" 25c
Market	" 15c

ANTIMONY.

₱ lb	22c

BISMUTH.

₱ lb	$6 00

NICKEL.

₱ lb	$3 50

PIG IRON.

Hot Blast Charcoal.—	
Hanging Rock No. 1	$56 00 @ 57 00
" " No. 2	54 00 @ 55 00
" " Forge	45 00 @ 46 00
Tennessee No. 1	55 00 @ 56 00
" Forge	44 00 @ 45 00
Alabama No. 1	56 00 @ 57 00
Missouri No. 1	56 00 @ 57 00
" No. 2	54 00 @ 55·00
Stonecoal Pig.—	
Missouri No. 1	57 00 @ 57 00
" Forge	44 00 @ 45 00
Ohio No. 1	55 00 @ 56 00
" Forge	42 00 @ 44 00
Scotch Pig No 1	none in town
Cold Blast Charcoal.—	
Hanging Rock Car Wheel	60 00 @ 65 00
Missouri Car Wheel	60 00 @ 62 00
Red River Car Wheel	60 00 @
Tennessee "	60 00 @ 62 00
Alabama "	60 00 @ 62 00

SHEET IRON.

Russia	₱ lb. 19 @ 23c
Am. Russia A	" 14 @ 15c
" " B	" 13 @ 14c

	Com. B.	Smooth Fin. S. L. U.	Smooth D. Re'fd.
18 to 20	6·3c	7·5c	8·5c
22 to 24	6·5c	7·8c	9·0c
26	6·8c	8·0c	9·2c
27	7·0c	8·2c	9·4c

GALVANIZED IRON.

Nos. 18 to 20	15c
" 22 to 24	16c
" 25 to 26	17c
No. 27	18c
" 28	20c

Galvanized, 15 @ 20 % discount in full bundles.
Bar Steel, Silver, ₱ lb 22c ; Crescent, 17¼ @ 18c.
Iron Wire, discount, 10 @ 15 %.
Enameled Ware, discount, 15 @ 20 %.

ONE PIECE CORRUGATED ELBOWS.

Charcoal Iron.		Russia Iron.	
4½ inch	₱ doz $3.75	4½ Inch	₱ doz $8.00
5 "	" 4·25	5 "	" 10·00
5½ "	" 5·25	5½ "	" 13·00
6 "	" 5·25	6 "	" 13·00
7 "	" 6·50	7 "	" 14·00

LEADER ELBOWS—FLAT CRIMP RETINNED.

	per doz.		per doz.
2-inch	$2 00	2½-inch	$2 25
3-inch	2 50	3½-inch	3 00
4-inch	3 50	4½-inch	4 00

Sheet Iron Bread Pans ₱ lb 12½ @ 13c.
American Broilers, ₱ doz. $12 @ $15.
Tinmen's Machines, net list, add 5 %.
Sad Irons, ₱ lb., 5½c. @ 5¾c.
Brass Kettles, Ansonia, 53 @ 54c : L. & G., 50c.

Inside Diameter. Inches.	Wrought Iron Pipe. Per Foot.	Weights of Pipe. Per Foot.
⅛	$ 12	24
¼	12	42
⅜	14	56
½	15	85
¾	25	1·12
1	34	1·67
1¼	48	2·25
1½	60	2·69
2	85	3·66
2½	1·25	5·77
3	1·75	7·54
3½	2·10	9·05
4	2·75	0·72

45 % discount.

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

ANVILS.

Armitage	₱ lb, gold, 13c
Peter Wright's	" " 13½c
Wilkinson's	" " 12½c

APPLE PARERS.

Conqueror	₱ doz $8 50
Lightning	" 8 50
Turn Table	" 8 50

AUGERS AND BITTS.

Cook's	25 % off list
Ives'	20 % "
Jennings'	5 % "
Snell's	10 % "

AXES.

Hunt's	₱ doz $14 00 @ 15 00
Lippincott's	" 13 50 @ 14 50
Lippincott's Pioneer	" 14 00 @ 15 00
Simmons'	" 13 50 @ 14 50

AXLES.

Kritch & Crane Mfg. Co.'s—	
Patent Taper Axles	5 % off list
Swelled Taper Axles	5 % "
Concord Axles	5 % "
Red Jacket Axles	5 % "
Common Axles, 1½ inch and upward	₱ lb 9c
" " less than 1½ inch	" 9½c

BELLS.

Troy, Church	₱ lb 55c
Light Brass, Hand	50 % off list
Moore's, Cow	20 % "

BOLTS.

Arms, Bell & Co.'s Machine	10 % off list
" " " Carriage and Tire	60 % "
Norway Iron Carriage and Tire	45 % "
Cast Iron Barrel, Shutter, &c	30 % "

CAST BUTT HINGES.

Narrow Fast Joint	15 % off list
Broad Fast Joint	30 % "
Broad Loose Joint	40 % "
Reversible	30 % "
Revers. Japanned and Silver Tipped	30 % "
Loose Joint " "	20 % "
Excelsior Reversible Blind	25&5 % "
Lull & Porter's Blind	25&5 % "

WROUGHT BUTTS.

Narrow	net list
Reversible	15 % off list
Broad	15 % "
Table Hinges	net list
Back Flaps	net list
Inside Blind Hinges	net list

CASTORS.

Porcelain Wheel Bed or Plate	30 % off list
Iron or Brass "	20 % "

CHAINS.

English Coil	3-16 ¼ 5-16 ⅜ 7-16 ½ in.
	15 12½ 11¾ 11 10½ 10c. gold
Trace	6½-10-2 75c. "
	7-10-2 80c. "
German Coil and Halter	new list add 25 % "

CHISELS.

Socket, Firmer or Framing	55 % off list

CLOTHES WRINGERS.

Colby's	₱ doz $66 00
Novelty	" 72 00
Universal	" 72 00
Monitor	" 72 00

COFFEE MILLS.

Parker's	net list
P. S. W. & Co.'s	5 % off list

CORN KNIVES.

Dunn Edge Tool Co.'s Clipper	₱ doz $5 75
Disston's	" 5 75

CROW BARS.

Steel Pointed	₱ lb 8 @ 10c
Solid Cast Steel	" 20c

CUTLERY.

J. Russell & Co.'s, Lamson, Goodnow & Co.'s, Landers, Frary & Clark's	15 % off new list

FILES AND RASPS.

Nicholson's Mill Files	$5 50 to the £ currency
Nicholson's Other Files	5 00 to the £ currency
Butcher's Files	7 00 to the £ currency
Heller's Horse Rasps	$10 00 to the £ cur'y less 40 %

FORKS AND HOES.

Auburn Mfg. Co.'s Hay & Manure Forks	25 % off list
" " " Handled Hoes	20 % "
" " " Planter Eye Hoes	add 15 % to list
Winsted's Planter Eye Hoes	add 15 % "

HAMMERS.

Yerkes & Plumb	new list net
Masons' Hammers	₱ lb 20c
Smith Hand Hammers	" 22c

HANDLES.

	Extra.	No. 1.	No. 2.	No 3.
Axe	$2·75	$2·25	$1·75	$1·00
Pick	Extra. $2·50	No. 1. $2·00	No. 1½. $1·75	No. 2. $1·25

Smith & Montross Fork, Hoe and Rake . . 10 % off list
" " Broom and Mop . . $12 @ $18 ₱ M.

HARROW TEETH.

1 inch iron	₱ lb 6c
¾ and ⅞ inch, iron	" 6¾c
⅝ inch iron	" 6½c
Barbed or Headed	½c extra

HATCHETS.

Hunt's	add 5 % to list
Simmons'	5 % off list

HAY KNIVES.

Lightning	₱ doz. $24 00
Dunn Edge Tool Co.'s	₱ doz $14 50—less 10 %
Fisher's	" 16 50—less 10 %

HINGES.

Strap and T—St. Louis make	net list

HORSE NAILS.

Eureka	23c rates
Ausable	22c "
Northwestern	22c "
Eagle	19c "
Globe	25c "

HORSE SHOES.

Rhode Island (Perkin's pattern)	₱ keg $7 50
Burden's	" 7 50
Mule Shoes	$1 00 extra
Rhode Island Trotting Shoes	2 50 "

LOCKS AND LATCHES.

Jones & Nimick's	20 % off list.
Moorehead, Adams & Co	20 % "
Norwalk Lock Co.'s revised list	20 % "

MATTOCKS AND GRUB HOES.

Klein, Logan & Co.'s Mat'cks	₱ doz. $14 25 @ 15 75
" Grub Hoes, Oval Eye	₱ doz. $11 00 @ 12 50

NAILS.

Wheeling	$5 60 rates.

PICKS.

Klein, Logan & Co.'s R. R. and Clay	$12 00 ₱ doz.
" " Coal	9 75 "
" " Poll	12 00 "
" " Stone	16 50 "
" " Tamping	19 00 "

PLANES.

Ohio Tool Co.	net list
Eastern	5 % off list

SAD IRONS.

Monitor Brand, Silver Polished	₱ lb 6c

SASH WEIGHTS.

Standard Solid Eyes	₱ lb 3½c

SAWS.

Disston's	5 % off list
Spear & Jackson s	$5 00 to £ gold
Hubbard, Lippincott, B. & Co.'s	10 % off list
Branch, Crooks & Co.'s	10 % "
Livingston's Patent Buck	net list

SCREWS.

American Screw Co.'s revised list	45 % off
$2000 worth in 6 months	2½ % extra

SCYTHES.

Blood's C. S. & G. S.	net list
Dunn's Edge Tool Co.'s	"
Paris Furnace Co's	20 % off list
Waldron's English	$9 00 to £

SCYTHE STONES.

No. 1 Indian Pond	₱ gross $ 7 50
Extra Indian Pond	" 7 50
Premium	" 9 50
Diamond Grit	" 13 50

25 % off

SHOVELS, SPADES AND SCOOPS.

Ames'	add $1 00 to list
Lippincott's	new list net
Rowland's	net list

SLEDGES.

Smith Stone or Coal Sledges—	
Steel Face Polished	₱ lb 17c
Solid Cast Steel	" 25c
Striking Sledges	₱ lb extra 1c

SNATHS AND CRADLES

20 % off list

SPRINGS.

Cleveland Spring Co.'s—	
Carriage and Express	net list
Blue Seat Springs	20 % off list

TACKS.

Norway Tack Co.'s ½ weight	70 % off list
Brads	50 % "

TRAPS.

Newhouse Patent	12½ % off list
Reichard's Animal, Wood Bottom	₱ doz $10 00
" Metal Bottom	" 12 00

VISES.

Solid Box	₱ lb 18c
Wilson Mfg. Co.'s	15 % off list

WRENCHES.

Coes' Genuine	25 % off list
Coes' Pattern	40 % "
Taft's	50 % "

London Metal Market.

From the Mining Journal.

COPPER.					
Best selected	per ton	100	0 0	101	0
Tough Cake and Tile	"	98	0 0		
Sheathing and Sheets	"	96	0 0	100	0 0
Bolts	"	102	0 0	105	0 0
Bottoms	"	103	0 0		
Old (exchange)	"	84	0 0		
Burra Burra	"	96	0 0		
Wire	per lb		0 1	0	1 0¼
Tubes	"	0	1 0½	0	1 1
BRASS.					
Sheets	per lb	0	0 10	0	0 10½
Wire	"	0	0 10¼		
Tubes	"	0	0 10¾	0	0 11½
Yellow Metal sheathing	"	0	0 8¾	0	0 9¾
Sheets	"	0	0 8¾		
SPELTER					
Foreign	per ton	23	10	24	0 0
To arrive	"				
ZINC					
In sheets	per ton.	31	10 0	32	0
TIN.					
English Blocks	per ton.	145	0 0		
Ditto Bars	"	146	0 0		
Ditto, refined	"	147	0 0		
Banca	"	146	0 0	147	
Straits	"	142	0 0	143	
TIN PLATES.*					
IC Charcoal, 1st quality	per box.	2	1 0	2	2
IX Ditto, 1st quality	"	2	7 0	2	8
IC Ditto, 2d quality	"	1	18 0	2	1
IX Ditto, 2d quality	"	2	4 6	2	7
IC Coke	"	1	15 6	1	16
IX Ditto	"	2	1 6	2	2
Canada plates, per ton	"	24			
Ditto, at work	"	21	0 0	22	0
IRON.					
Ba. s, Welsh, in London	per ton.	11	15 0		nom
Ditto to arrive	"	11	15 0		"
Nail rods	"	12	10 0		"
" Stafford in London	"	12	10 0	13	0
Bars "	"	12	10 0	13	0
Hoops "	"	13	0 0	14	0
Bars " at works	"	11	5 0	12	0
Hoops " "	"	13	0 0	14	0
Sheets, single	"	15	0 0	16	0
Pig, No. 1, in Wales	"	6	0 0	7	0 0
Refined metal, ditto	"	7	0 0	8	0 0
Bars, common, ditto	"			11	0 0
Ditto, merchant, Tyne or Tees	"			11	10 0
Do., Railway, in Wales	"			10	10 0
Ditto Swd., in London	"	15	0 0		
To arrive	"				
Pig, No. 1, in Clyde	"	6	10 0	7	0 0
Do., f.o.b. Tyne or Tees	"	4	10 0	5	10 0
Ditto, Nos. 3, 4, f.o.b. do.	"				
Railway chairs	"	5	5 0	6	0 0
" spikes	"	12	10 0	14	0 0
Indian Charcoal Pigs in London	"	7	0 0	8	0 0
STEEL.					
Swedish, in kegs (rolled)	per ton.				
Ditto (hammered)	"	18	10 0	19	0 0
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English, Spring	"	20	0 0	25	0 0
QUICKSILVER, per bottle		nom.		12	15 0
LEAD.					
English Pig, common	per ton.	21	15 0	22	0 0
Ditto, L S	"	21	15 0	22	0 0
Ditto (W B)	"	22	10 0	23	0 0
Ditto, sheet	"			22	15 0
Ditto, red lead	"	24	10 0		
Ditto, white	"	28	10 0	30	0 0
Ditto, patent shot	"	24	10 0	24	15 0
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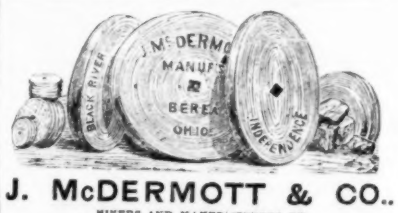

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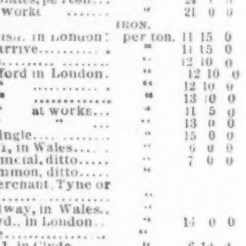

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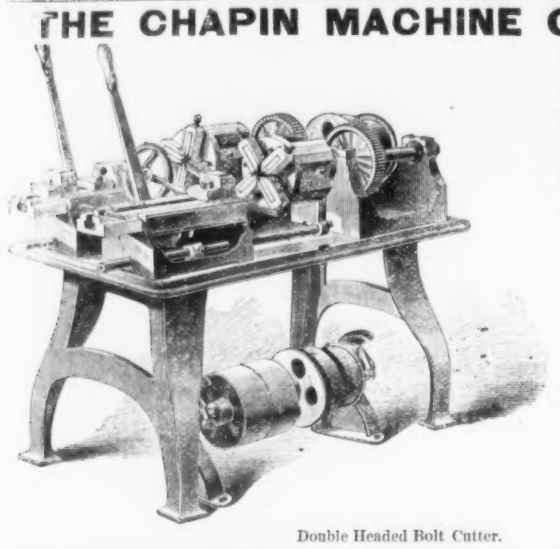

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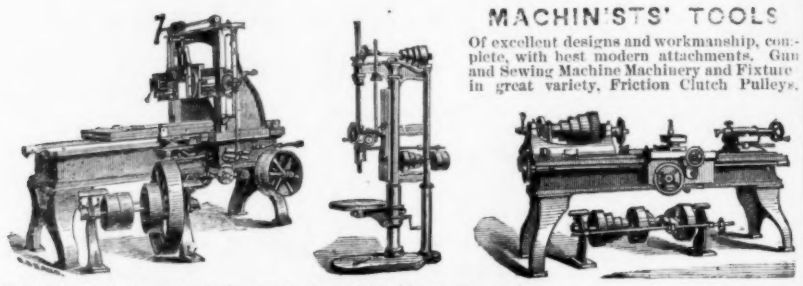

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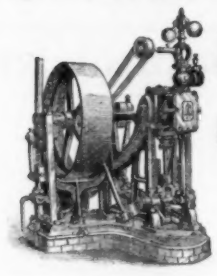

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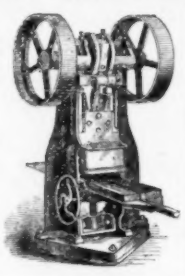

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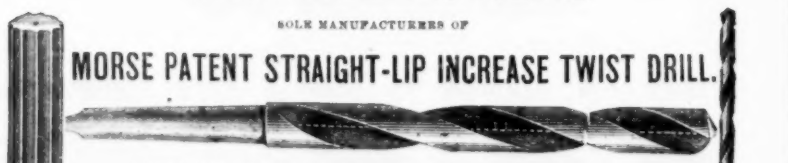

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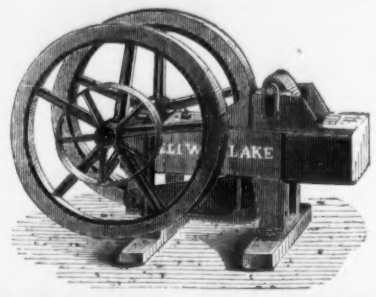

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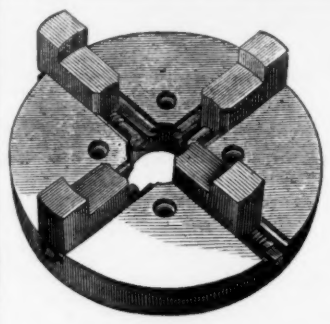

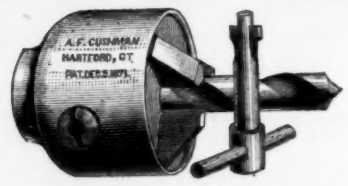

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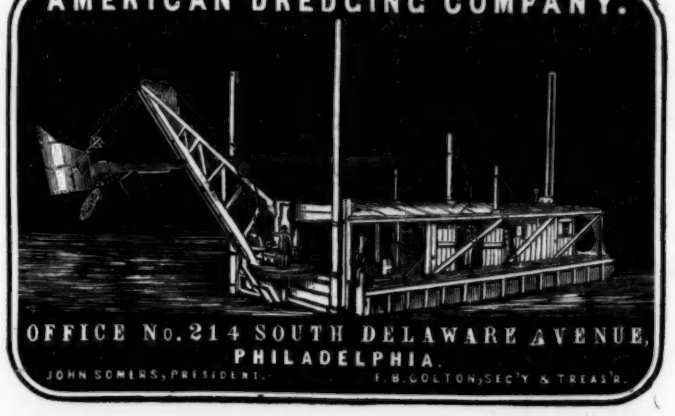

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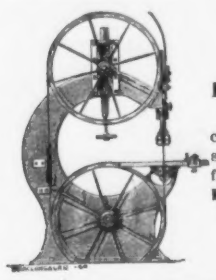

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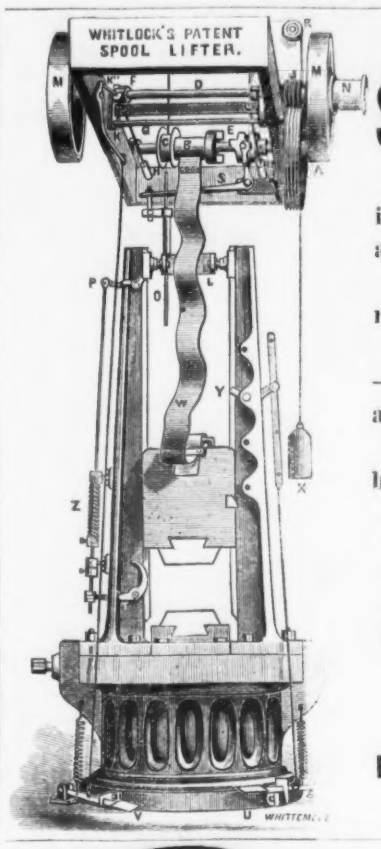

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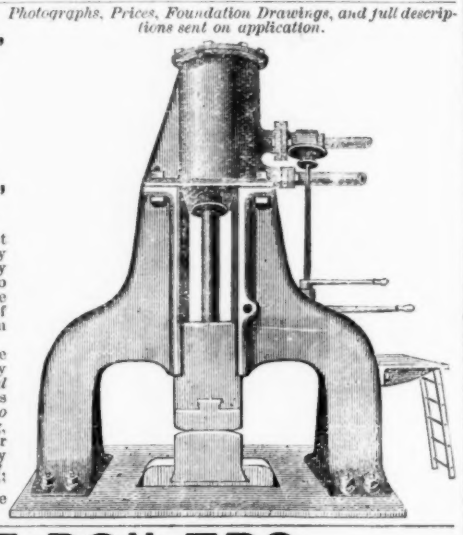

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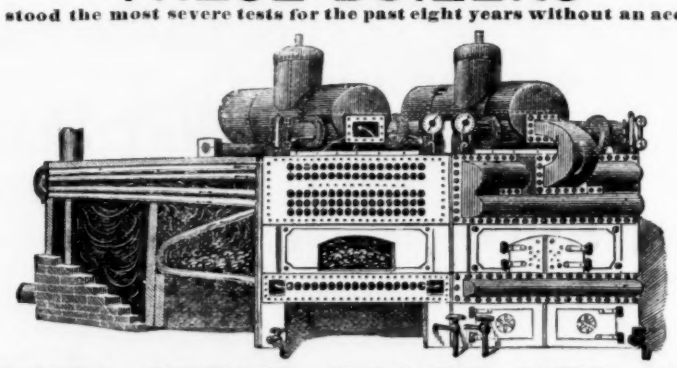

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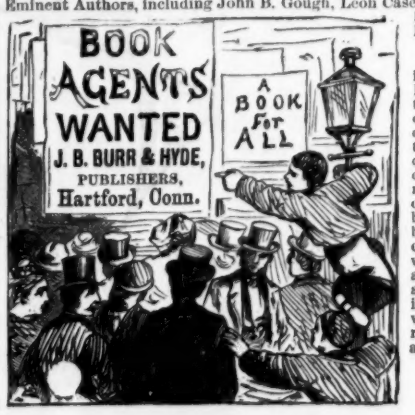

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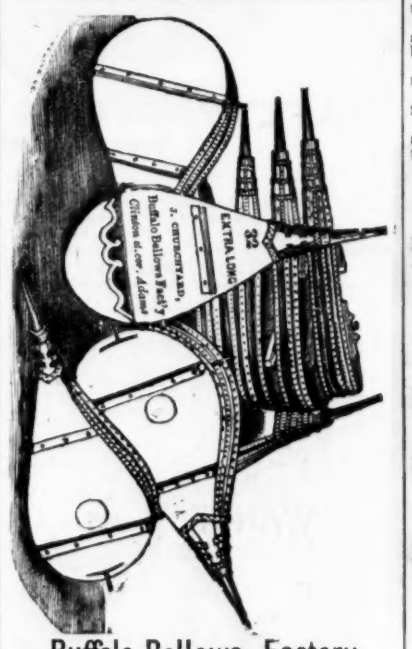

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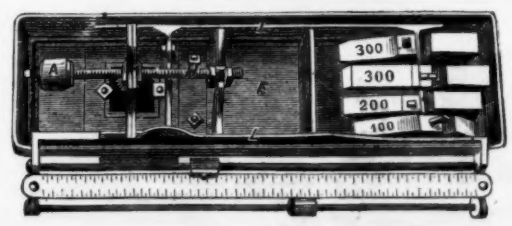

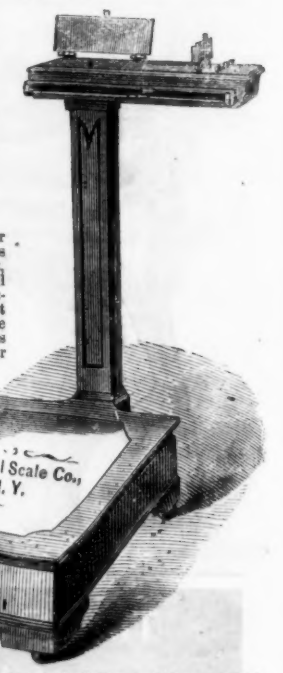

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